

# GREAT BASIN FIRE WEATHER ANNUAL OPERATING PLAN



2004



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ANNUAL OPERATING PLAN  
2004**

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## I. INTRODUCTION

This document serves as the Interagency Fire Weather Annual Operating Plan (AOP) for the Great Basin area, which includes the Eastern and Western Great Basin Geographic Areas. The general relationship between NWS and the interagency fire management community is set forth in the National Interagency Agreement for Meteorological Services. The AOP provides specific procedural and policy information regarding the delivery of meteorological services to the fire management community in the Great Basin area as allowed under the umbrella of the National Agreement.

References will include:

- National Weather Service NWSI 10-4: Fire Weather Services ([www.nws.noaa.gov/directives/010/010.htm](http://www.nws.noaa.gov/directives/010/010.htm) )
- Interagency Agreement for Meteorological Services (National MOA or "National Agreement") ([www.nws.noaa.gov/directives/010/pd01004006a.pdf](http://www.nws.noaa.gov/directives/010/pd01004006a.pdf) )
- Great Basin Mobilization Guide ([www.blm.gov/utah/egbcc/trng\\_pub.htm](http://www.blm.gov/utah/egbcc/trng_pub.htm) )
- National Interagency Mobilization Guide (<http://www.nifc.gov/news/mobguide/index.html> )

## II. SIGNIFICANT CHANGES SINCE LAST YEAR

- New Red Flag Criteria, standardized across the Great Basin (page 9)
- Added amendment criteria for Fire Weather Forecasts (page 5)
- Better definitions for elements in Fire Weather Forecasts (page 6)
- Added Land Management/Predictive Services roles and responsibilities section (page 13)
- Added joint responsibilities section (page 16)

## III. ORGANIZATIONAL DIRECTORY

Cooperating federal and state land management agencies in the Great Basin include:

Bureau of Land Management	USDA Forest Service
Bureau of Indian Affairs	National Park Service
US Fish and Wildlife Service	Utah Forestry, Fire, and State Lands
Idaho Department of Lands	Nevada Division of Forestry

Fire weather services are provided by Eastern and Western Great Basin Predictive Services and the following NWS forecast offices.

Boise, ID	Elko, NV	Flagstaff, AZ
Grand Junction, CO	Las Vegas, NV	Pocatello, ID
Reno, NV	Riverton, WY	Salt Lake City, UT
NWS Central Region	NWS Western Region	

Contact information for Predictive Services and the NWS offices can be found in Appendix A. Service areas are depicted in Appendix B. NOTE: All phone numbers are unlisted and should not be given to the general public.

## IV. NATIONAL WEATHER SERVICE -- SERVICES AND RESPONSIBILITIES

### A. Basic Services

Basic services constitute the collective suite of operational fire weather forecast products and professional services provided by NWS. Any changes to these forecast services or implementation of new operational forecast products and/or services will be coordinated with the Land Management Agencies' Predictive Services Units (PSUs) at either, or both, coordination centers (Reference NWSI 10-403) and with local land management officials within the County Warning Forecast Area (CWFA) of the NWS office that is proposing the changes. Any non-operational forecast products will be clearly labeled as "Experimental" or "Prototype".

1. Routine Fire Weather Forecasts (FWF)

Routine fire weather forecasts (or planning/preparedness forecasts) are issued by all NWS offices serving the Great Basin. These forecasts provide general, zone-based information used in daily planning and preparedness.

a. Issuance Times During Fire Season

Forecasts will be issued during the fire season. The season generally runs from 1 April through 31 October, encompassing most of the prescribed burning and wildfire season. These will be the standard start and stop dates for the fire weather forecasts. These dates, however, are flexible and will be coordinated with either or both of the geographic area coordination centers and the local land management agencies affected by the changes. Modifications to these start and stop dates will be enumerated in Appendix B, National Weather Service Offices.

Two forecasts will be issued daily – a morning forecast issued no later than 0900 local time and an afternoon forecast issued by 1530 local time – 7 days a week. Because of the large north-to-south extent of the Great Basin and seasonal variations in weather and fire occurrence, only one issuance per day may be sufficient during the early spring or late fall. This must be coordinated with either or both of the geographic area coordination centers and the local land management agencies affected.

b. Issuance Outside Fire Season

Some NWS offices issue fire weather forecasts year-round. For those offices that do not, spot forecasts may be issued, on request, in lieu of fire weather forecasts. However, Red Flag Warnings and Fire Weather Watches will still be issued as weather and fuels conditions warrant.

c. Forecast Updates

Forecasts will be updated when: 1) A Fire Weather Watch or a Red Flag Warning is issued, cancelled, or updated; 2) when any of the amendment criteria in Table 1 are met; or 3) typographical or formatting errors that confuse the intended meaning are detected.

**Table 1. Fire Weather Forecast Amendment Criteria**

<b>Fire Weather Forecast Amendment Guidelines</b>	
<b>Forecast</b>	<b>AMEND WHEN...</b>
Thunderstorms are not in the forecast...	Thunderstorms occur or are imminent.
Wind speed of 15 mph or greater...	Speed exceeds forecast by 10 mph or more.
Average minimum RH is 16% to 40%...	Differs by 10% or more.
Average minimum RH is 15% or less...	Differs by 5% or more.

The GACC shall be notified when an update is issued. The GACC will notify all impacted Dispatch and Communications Centers.

d. Access

Forecasts are transmitted automatically through the NWS AWIPS computer system. Forecasts are also available on WIMS, the Great Basin Predictive Services web sites, and the web sites of the various NWS offices that serve the Great Basin. Links can be found in Appendix B.

e. Content and Format

Forecasts will conform to either of the national standard narrative or tabular formats, per NWSI 10-401 (all Great Basin NWS offices currently use the narrative format and are encouraged to continue to do so to maintain uniformity). Morning forecasts will focus on the following 36 hours (3 operational periods). Afternoon forecasts will focus on the following 48 hours (4 operational periods). General extended outlooks will cover, at a minimum, the next 5 calendar days.

Each forecast will begin with pertinent headlines and a brief, non-technical weather discussion highlighting significant weather events or critical fire weather patterns. Headlines are required for Red Flag Warnings and Fire Weather Watches, but may be included for other situations including air stagnation, record heat, severe weather potential, significant weather pattern changes, etc. Zones that have watches or warnings should be grouped separately from those without watches or warnings. However, at a minimum, zones with warnings or watches must be clearly identified in the forecast text.

Forecasts for the first 36 or 48 hours will contain the following elements for each zone or zone grouping, listed in the order they will appear <sup>1</sup>.

- i. Headline(s), as appropriate
- ii. Sky / Weather
- iii. Temperature and 24-hour trend <sup>2</sup>
- iv. Humidity and 24-hour trend <sup>2</sup>
- v. Wind – 20-foot RAWs standard (slope/valley) <sup>3</sup>
- vi. Wind – Ridgetop (as appropriate) <sup>3</sup>
- vii. Chance of Wetting Rain (0.10 inch)
- viii. Lightning Activity Level (LAL) <sup>4</sup>
- ix. Haines Index
- x. Mean Mixing Height
- xi. Mean Transport Wind
- xii. Ventilation Index (kt-ft)
- xiii. Clearing Index
- xiv. Extended forecast to at least day 7 at the end of product.

Notes:

1. See element definitions and descriptions in Appendix C. Elements i through vi and element xiv are nationally required elements. Elements vii through ix are Great Basin required elements. Elements x through xiii are optional elements.
2. In areas of complex terrain, temperature and relative humidity should be forecast at discrete elevations (e.g., 3000-ft, 5000-ft, 8000-ft, etc) or at generally accepted locations (i.e., valley bottom and mid-slope). These should be coordinated with the local land management and Predictive Services.
3. Wind speed must conform to the NWCG standard of 20-foot, 10-minute average wind.
4. As defined in Table 2.

**Table 2. Lightning Activity Level Definitions**

Lightning Activity Level Definitions		
1	No lightning.	
2	Isolated wet or dry thunderstorms.	Less than 15% coverage.
3	Widely scattered wet thunderstorms.	15% to 24% coverage
4	Scattered wet thunderstorms.	25% to 54% coverage
5	Numerous wet thunderstorms.	55% to 100% coverage
6	Widely scattered or greater dry thunderstorms.	15% or greater coverage

Format examples and descriptions of forecast parameters can be found in the appendices.

2. Spot forecasts

a. Criteria

Spot forecasts are site-specific forecast products issued for wildfires, prescribed burns, aerial spraying, HAZMAT incidents, search and rescue, and any other activities conducted by the land management community. Spot forecasts are available by request, 24-hours a day, 365 days a year. Spot forecasts are available to any federal, state or municipal agency.

The priority for spot forecast issuances and updates will be:

- i. Wildfire and Protection of Life
- ii. Prescribed burns and Wildland Fire Use (WFU)
- iii. All others

Site-specific forecasts are considered one-time requests. Updates will be issued when:

- i. The forecaster determines that the current forecast does not adequately represent current or expected weather conditions, or;
- ii. Land management personnel communicate to the forecaster that the current forecast appears unrepresentative of conditions on the site, or;
- iii. A typographical/format error is detected.

Updates will be disseminated to users in the same manner as the original spot forecast. If the update is initiated by the NWS, a follow-up phone call will be made to inform the user that an update has been issued. If the update is requested by the user, a contact point number will be provided.

b. Content and Format

Spot forecasts will contain the required minimum elements, unless otherwise specified upon request:

- i. Headline (required when Red Flag Warning / Fire Weather Watch)
- ii. Discussion
- iii. Sky/weather (including chance of wetting rain)
- iv. Temperature
- v. Relative humidity
- vi. 20-foot, 10 minute average winds

Optional elements (including transport winds, mixing height, LAL, Haines index, etc.) may be included upon request.



The valid time will be determined at the time of the request. Most spots contain three periods, usually "TODAY", "TONIGHT", and "NEXT DAY," but users will indicate which periods for which a forecast is needed.

c. Procedures

Internet-based NWS Spot is the standard for requesting and retrieving spot forecasts and should be used when available. They are accessible via web sites of the NWS offices that serve the Great Basin area and on the coordination center web sites, found in Appendix B.

When Internet access is not possible, spot forecasts may be requested and disseminated via phone or fax using the backup spot forecast request form found in Appendix G. Spot forecasts will generally be available within 60 minutes of the time the NWS office receives the request. Spot forecasts may be requested well in advance of a planned project, for example, the night before. In such situations, it is strongly recommended that the requestor indicate the latest time he or she needs the forecast returned. NWS should be contacted if a spot forecast is not available within this time frame.

The requestor should provide information about the location, topography, fuel type(s), top and bottom elevations of fire or project (if appropriate), size of fire or project, ignition time (if appropriate), and a contact name(s) and telephone number(s) of the responsible land management personnel. The request will also include quality, representative observations at, or near, the site.

d. Spot Forecast Feedback Requirement

Land management should provide feedback to the NWS forecasters on the quality and accuracy of the spot forecast. Feedback should also be relayed to GACC meteorologists. Responsibility for providing fireline observations for the verification of forecast accuracy rests with the land management agencies, as outlined under, "Fire Weather Observations," Section V-F.

3. Red Flag Warnings and Fire Weather Watches

The Red Flag Warning and Fire Weather Watch program is designed to provide land management officials with advance notice of weather conditions that, when coupled with critical fuels conditions, can lead to extreme fire behavior or heightened potential for large fire starts. It is implicit that firefighter and public safety is of the utmost importance. Identification of Red Flag events is a shared, collaborative responsibility between land management officials and NWS fire weather forecasters. Land management officials must identify critical fuels conditions. Weather forecasters must identify weather conditions that will contribute to extreme fire behavior or heightened large fire potential.

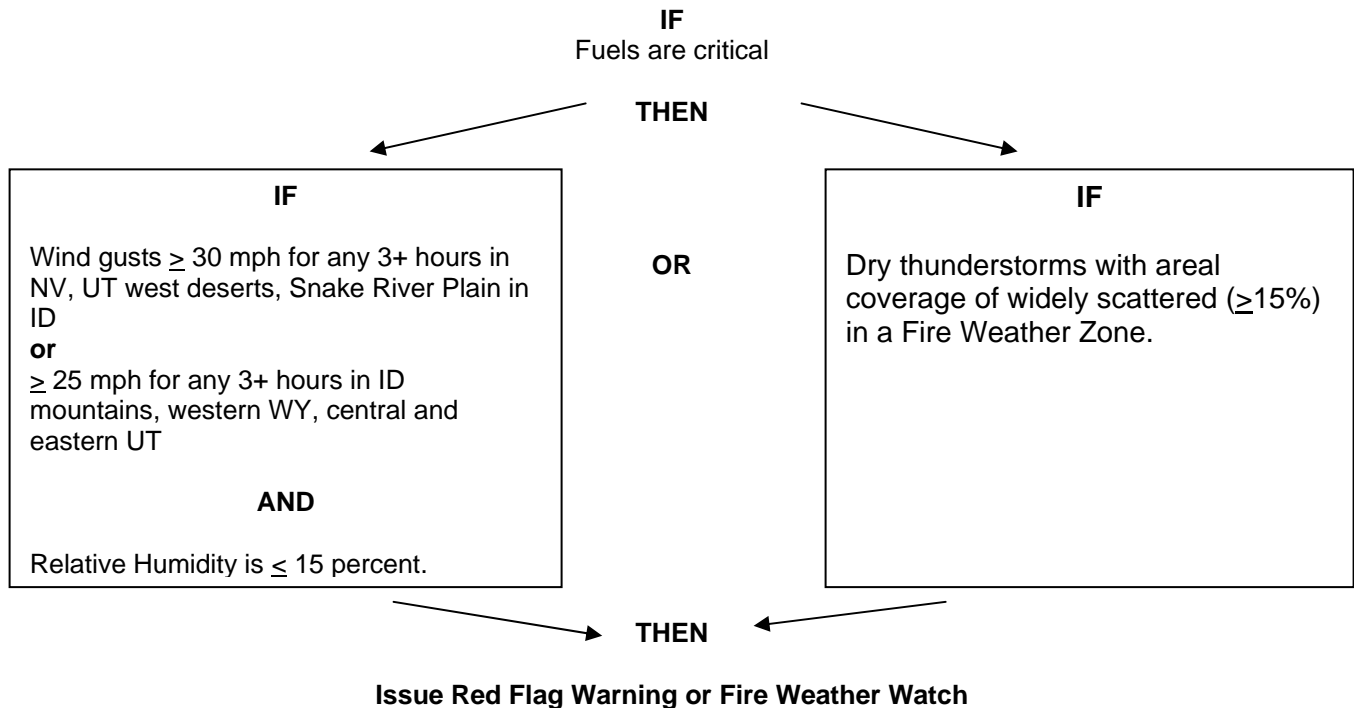
A Red Flag Warning shall be issued when Red Flag weather criteria (defined below) are forecast to occur within the next 24-hours or are already occurring, and are coupled with critical fuels conditions.

A Fire Weather Watch shall be issued when there is a high potential for Red Flag weather criteria to be met in the 12-72 hour time frame. The watch may be issued for all, or selected, portions within a fire weather zone or region.

a. Criteria

Standardized criteria for issuance of Red Flag Warnings and Fire Weather Watches in the Great Basin area are a combination of weather and critical fuels conditions. A standardized set of Red Flag Criteria have been developed to simplify issuances and to facilitate coordination and

ensure continuity between neighboring NWS offices as well as across land management administrative boundaries. While no set of criteria can possibly accommodate all areas equally within the Great Basin, land management officials and their servicing NWS office may address local concerns not specifically accounted for in the standard criteria.



These criteria assume the following:

- i. In the absence of local (CWFA) agreements, NFDRS Adjective Rating (as displayed on the WFAS website) must be = or > Very High.
- ii. The mid-point of a forecast range is the breakpoint for watch/warning issuance. Additionally, forecast ranges should not exceed 10 mph.
- iii. Wind gusts speed must be from NWCG compliant RAWs stations (20-foot) or a NWS/FAA ASOS station (10 meter). Wind gusts speed measurements from other observation platforms will be used upon agreement between NWS and land management agencies.

Additional (optional) criteria will be left to agreements between local NWS offices and land management agencies within their CWFAs. These may include but are not limited to: location-specific, alternative values to the standard criteria above; Haines Index; windshifts; cold frontal passages (CFP); first lightning after extended hot, dry period; drought; poor overnight RH recovery; or combinations of any of these. Additional criteria can be implemented as justification for a warning ONLY after coordination with neighboring NWS offices, local land management officials and Predictive Services meteorologists.

In rare situations, forecasters may issue a watch or warning for conditions which do not meet the established criteria but in their best judgement, and after coordination with local land management officials, will contribute to extreme fire behavior or heightened large fire potential.

b. Product Format and Content

A Red Flag Warning/Fire Weather Watch statement (RFW) will be used for issuing, updating, and canceling all Red Flag Warnings and Fire Weather Watches. This message will include:

- i. Headline that includes a description of the watch or warning, a description of the area (i.e., counties, agency administrative unit, etc.), and the time period for which the watch or warning is valid;
- ii. List of fire weather zones impacted, and;
- iii. Short discussion detailing the causes and nature of the event.

c. Procedures and Access

When Red Flag Warnings and Fire Weather Watches are issued, they will be headlined in both the general fire weather forecast and any currently valid spot forecasts. In the general forecast, the headline will appear at the beginning, before the discussion section, and at the beginning of each zone or zone grouping affected by the warning or watch. The headline will be in the same descriptive format as on the RFW product itself. If issuance of a Red Flag Warning or Fire Weather Watch requires an update of the general forecast, the NWS office will verbally notify the affected dispatch centers and Predictive Services of the appropriate geographic area coordination center as soon as possible. Red Flag Warnings and Fire Weather Watches will remain in effect through the expiration time noted in the forecast, or until canceled or updated.

Red Flag Warnings and Fire Weather Watches are available in WIMS, the Great Basin Geographic Area Coordination Center Predictive Services web page and the web sites of the NWS offices that serve the Great Basin area. Websites are listed in Appendix B.

4. National Fire Danger Ratings System (NFDRS) Forecasts

The National Weather Service will provide National Fire Danger Ratings System (NFDRS) forecasts valid at 1300 LST (1400 LDT) the next day after issuance. These forecasts are used to prepare the NFDRS fire danger indices for the next day.

a. Criteria for Issuance

NWS will issue NFDRS forecasts daily when NFDRS-compliant observations are received. NFDRS observations must be complete and available in WIMS by 1350 LST (1450 LDT) to be received by NWS in time to produce a forecast. Stations that do not have valid observations in WIMS on time will not receive an NFDRS weather forecast and, thus, will not receive forecast fire danger indices for the next day.

b. Content and Format

Complies with NWSI 10-4 and is outlined in Appendix C for reference. The actual NWS NFDRS forecast product is used only by WIMS and is not viewable directly by fire management personnel.

c. Procedures

NWS will produce a forecast for each station that provides a valid observation or for pre-determined groups of observations that appear on the 1400 LST (1500 LDT) observation collective. Forecasts may be in the form of a trend forecast for individual or grouped stations, or a point (station-specific) forecast. Trend forecasts are preferred over point forecasts. However, which form is used should be coordinated with local land management officials and Predictive Services at the geographic area coordination centers. When point forecasts are issued, NWS will ensure that forecast values are statistically valid relative to historical values for those stations.

## 5. Participation in Interagency Groups

NWS offices providing service within the Great Basin area are expected to provide representation at the annual AOP meeting. Proxy representation is acceptable. NWS offices should participate in at least one meeting per year, usually prior to the start of the next fire season, with local fire management units to strengthen the customer relationship and address local concerns. GACC meteorologists should be included in these meetings.

### B. RAWS Monitoring

Meteorologists should monitor the RAWS network for suspect or erroneous data. Forecasters should use sound meteorological judgment in determining if data is not representative of conditions. When an observation is identified as unrepresentative, forecasters should notify the Predictive Services meteorologist in the GACC where the observation resides to initiate maintenance or repair of the station in question.

### C. Special Services

NWS will provide and maintain a cadre of trained Incident Meteorologists (IMETs). A sufficient number of IMETs should be available to support multiple incidents from May through September. Information regarding the dispatch of IMETs, both within and outside the Great Basin area, can be found in the Great Basin Mobilization Guide.

### D. Forecaster Training

The NWS recognizes the need for specialized training in fire weather meteorology for forecasters. Any NWS meteorologist producing fire weather products shall have met the requirements set forth in NWSI 10-405. These include:

1. Completion of the NWS Fire Weather computer-based learning module.
2. Completion of "Intermediate Wildland Fire Behavior, S-290".
3. Completion of local training which should focus on: (1) the effects of local terrain on fire weather parameters and fire behavior, with an emphasis on wind; (2) local fire weather forecast techniques; (3) local fire season climatology; and (4) Remote Automated Weather Stations (RAWS) observations.
4. Knowledge of all NWS fire weather policy, products and services and proficiency in the preparation and dissemination of those products.
5. Incident meteorologists (IMETs) and Program Leaders (FWPLs) may have additional recommended training, as set in NWSI 10-405. The course, "National Fire Danger Ratings System, S-491," is recommended but not required for NWS FWPLs and IMETs.

## V. PREDICTIVE SERVICES/LAND AGENCIES – SERVICES AND RESPONSIBILITIES

Predictive Services units reside at both the Eastern and Western Great Basin Coordination Centers. The interagency coordination centers' primary mission is to provide resource support for the functional areas of overhead, crews, aircraft, supplies, and equipment to the field for wildland fire and other emergency operations.

The Predictive Services units will provide daily, medium-range, and long-range fire weather, fire danger, and resource outlooks for use in tactical and strategic planning. These outlooks will complement short-term forecast products provided by the NWS.

A. Operational Support and Predictive Services

Predictive Services will produce a suite of products tailored to the tactical and strategic mission of the land management agencies within the Great Basin. While the main area of responsibility is at the geographic area level, Predictive Services will provide services to sub-units of the geographic area, such as dispatch centers and local administrative units. Contributions will also be made to the national level Predictive Services program. All products will be available on the Predictive Services web pages.

1. Daily Fire Weather/Fire Behavior Map

The Daily Fire Weather/Fire Behavior Map is a text-and-graphics product which summarizes expected weather conditions and fire behavior for the next 24-hours. Fire behavior forecasts will be included when a Fire Behavior Analyst is assigned to Predictive Services at either or both of the coordination centers. This typically occurs when the Great Basin MAC is convened. The product will be issued at least once a day per the following schedule:

Early Spring	March 1 – April 30 (as needed or requested)
Spring/Summer:	May 1 – October 31 (daily)
Fall:	November 1 – November 30 (as needed or requested)

2. Weekly Fire Weather/Fire Danger Outlook

The Weekly Fire Weather/Fire Danger Outlook will address the potential for significant weather events (dry lightning outbreaks, precipitation events, wind events, etc.) that will have adverse or favorable impacts on fire occurrence or fire behavior in the next 7 to 10 days and that will require short-term decisions on resource availability and movements. The outlook will include observed trends and forecasts of NFDRS Energy Release Component (ERC) index and others.

The outlook will be issued weekly by the close of business (COB) every Tuesday, beginning in April and continuing through the end of the fire season, generally around the middle or end of October. Updates will be made when it appears that observed or expected conditions are significantly different than those contained in the product.

3. Monthly Fire Potential Outlook

The Monthly Fire Potential Outlook is a broader, more general assessment of weather, climate, and fuels conditions across the area. It incorporates climate trends, potential weather, and fuels condition and trends to make long-term predictions of impacts on fire business. Outlooks will focus on potential for large fire activity and time frames that will impact resource availability and mobilization relative to normal fire business for the time of year.

The Monthly outlook will be issued by the first of the month for which it is valid.

4. Seasonal Fire Potential Outlook

The Seasonal outlook is similar to the Monthly, except for a longer time period. This outlook attempts to predict the overall character of the upcoming fire season relative to a normal season (based on 5 to 10 year historical averages). The Seasonal is issued in the late winter or early spring prior to the onset of the fire season, and is updated at irregular intervals as needed, with a first update issued around early May. These times are not fixed, depending heavily on such factors as winter snowpack, onset and progress of snow melt, weather trends, fuels condition and trends, etc.

B. Remote Automated Weather Stations (RAWS)

Predictive Services will monitor the RAWS network within the Great Basin. This will include identifying unrepresentative observations or inoperative equipment and ensuring the data record is complete and accurate for input into WIMS and NFDRS. Predictive Services will relay information regarding the network to, address issues and concerns with, and offer recommendations for improvements to the network to the USDA Forest Service Regional RAWS coordinator and to the BLM-NIFC RAWS Program manager, as appropriate.

C. Land Management Liaison

Predictive Services meteorologists will act as the liaison on issues regarding weather, climate, and fuels between the land management agency partners in the Great Basin and service providers in these areas, including the NWS, private sector providers, and the research community.

D. Monitoring, Feedback, and Improvement of Fire Weather Information

Land management agencies will monitor all sources of fire weather information to ensure quality, consistency, and applicability. When significant issues arise, Predictive Services will address the issue with the service provider to enhance awareness and to work toward an appropriate solution. Items of significance include, but are not limited to:

1. General forecast consistency between County Warning and Forecast Areas (CWFAs), dispatch zones, and land management administrative units.
2. Red Flag Warning and Fire Weather Watch consistency with established criteria, timeliness of issuance, coordination, and applicability.
3. NFDRS forecast consistency with station climate histories.
4. Quality of fireline observations and spot forecast feedback from the field.
5. Overall adherence to policy and procedure, especially as set forth in the AOP.
6. Feedback from the field on the quality of all forecast products, especially Red Flag Warnings and Watches and Spot forecasts.

Resolution of issues shall follow procedures outlined in the interagency agreement found in Appendix F.

E. Technology and Data Transfer

Predictive Services will work to integrate advanced technology into analytical and prediction systems for use in fire management planning and operations. This will include regional numerical modeling, weather and fuels data assimilation and dissemination, and continued research and development in fire meteorology.

Where fire management computer systems, such as WIMS, are available, access will be granted to NWS for the purpose of obtaining and providing mission critical information, such as weather observations and forecasts.

F. Feedback to NWS

Land management agencies shall provide feedback on the quality of NWS products and services. This information will be used to gauge the quality and validity of products and services provided, make improvements, and to resolve any conflicts or discrepancies between products issued. Feedback should be provided as soon as possible so that action can be taken immediately.

G. Fire Weather Observations

Weather observations will be provided by the land agencies to the NWS to ensure sufficient information is available to produce quality forecast products. RAWS observations will comply with NWCG

standards for quality and timeliness. RAWs will be sited and maintained according to the NWCG PMS 426-3, "National Fire Danger Rating System Weather Station Standards."

Weather observations at or near the fire or project site are highly recommended when requesting a spot forecast. Fireline observations are preferred. Agency personnel should provide observations containing, at a minimum: temperature, humidity, wind speed and direction, and weather and sky condition that complies with guidance provided in NFES 2140, "Weather Station Handbook – an Interagency Guide for Wildland Managers." In situations where a fireline or on-site observation cannot be obtained (remote location, time constraints, etc.) a nearby, representative RAWs observation may be used. Keep in mind that the quality of the observation, or how representative it is of conditions at the fire or project site, will affect the precision a forecaster can provide in a spot weather forecast.

For planned projects requiring spot forecasts, such as prescribed burns, aerial spraying, rehabilitation, etc., it is strongly recommended that observations be taken for a minimum of seven (7) days, 24 hours a day, prior to commencement of the project. This will provide forecasters with a history of diurnal variations of weather, temperature, humidity, and wind at or near the project site.

#### H. Incident Response

The NWS is the provider of Incident Meteorologists (IMETs). Predictive Services meteorologists can respond to incidents when the NWS cannot provide a certified IMET within 24-hours of request receipt by the Staff Meteorologist at NIFC (SMN). In these instances, and when requested by incident command staff, Predictive Services meteorologists will provide forecast support as a Technical Specialist until the arrival of a certified NWS IMET. Technical Specialists will not be used as a substitute for NWS IMETs. Forecast support will revert to the NWS IMET after a reasonable transition period.

## VI. JOINT RESPONSIBILITIES

#### A. Briefings

Predictive Services or NWS meteorologists may be asked to provide briefings to agency decision-makers. These briefings generally occur during peak periods of the fire season or when a Multi-agency Coordination (MAC) Group has been convened. The briefings usually include a short-term weather discussion of critical weather patterns and a longer-term discussion of trends during the next several days. The briefings provide tactical (operational) and strategic (planning) information for land managers.

Briefing schedules vary with planning and staffing levels, fire activity, and management priorities. Predictive Services will provide briefing schedules and conference bridge phone numbers, as needed.

#### B. Coordination Calls

Predictive Services meteorologists will initiate a short coordination call between Predictive Services and NWS offices. The purpose of the calls is to discuss potential weather impacts on fire occurrence and fire behavior for the next 7 to 10 days. The discussion will start with Predictive Services meteorologists giving a brief assessment of fuel conditions and the critical weather events of most concern that will impact fire occurrence and behavior. NWS forecasters will then discuss the forecast and outlook for potential critical weather events. All attempts should be made to keep calls as short as possible, preferably under 15 minutes.

A regularly scheduled call will be conducted each Monday at 1000 MDT/0900 PDT. Additional calls throughout the week will be conducted as needed. Either Predictive Services meteorologists or NWS meteorologists can initiate a call additional calls. The method of notification will be determined jointly prior to the beginning of the season. One possible method will be to post notification on the GACC website, triggering an alarm on NWS offices' AWIPS computers. The message should be posted no

later than 0830 local and should list the NWS offices needed for the call and a time for the call. Calls will generally be conducted from early May in Eastern Great Basin and early June in Western Great Basin, as fire danger dictates, and will continue until no longer needed. In the event of conflict with coordination calls in other GACCs served by common NWS offices, arrangements will be negotiated between the Predictive Services units at the GACCs and the results relayed to the affected NWS offices.

Predictive Services will provide conference bridge phone numbers.

#### C. Training

Training for weather sections of S-190, S-290, and other fire weather courses can be provided at customer request. Requests can be made at any time of year to any of the NWS offices in the Great Basin. Requests will generally be met unless there are scheduling or staffing conflicts at the NWS office. In these cases, the requesting person or agency should provide alternate dates. If this is not possible, the NWS will assist in locating another trainer from another NWS office, or as necessity dictates, from the GACC.

Cross-training between NWS and GACC meteorologists is encouraged. NWS forecasters can detail at the GACC to gain an understanding of the decision support role Predictive Services fills in fire operations. GACC meteorologists can shadow NWS forecasters to view the forecast preparation process utilizing the new technologies available at NWS offices. Scheduling of cross-training visits should be arranged as far in advance as possible to reduce impacts on operations. However, because of the rapidly-changing nature of fire operations, the best opportunity may come with short notice. Flexibility is necessary.

#### D. Verification of Fire Weather Products

Predictive Services and NWS meteorologists will cooperatively develop, perform, and report verification results of prepared fire weather products. These will include, but are not limited to: Red Flag Warnings and Fire Weather Watches; NFDRS point and/or trend forecasts; Weekly fire weather/fire danger outlooks. Data sources used in verification must be well-sited, representative of conditions being verified, and reliable. Data sources not listed explicitly in the AOP will be determined on a case by case basis by both NWS and Predictive Services meteorologists. Verification of Fire Weather Watches/Red Flag Warnings should generally occur within a few days of an event or a period of events. NWS and Predictive Services should discuss verification results at least once a month to ensure consistent verification methods are used and to share lessons learned from each event. These discussions can be conducted by conference call at a mutually agreeable time. Dates and times of verification conference calls can be arranged by email or by phone.

#### E. Establishing or Modifying Forecast Zone Boundaries

Forecast zone boundaries shall be established and/or modified jointly by the NWS and the land management agencies with administrative responsibility for the affected lands. Predictive Services meteorologists should be included in negotiations. Existing zone boundaries may be modified to avoid splitting land management administrative boundaries between multiple NWS forecast areas. Changes must be agreed upon at least 120 days prior to implementation.

### VII. EFFECTIVE DATES FOR THE ANNUAL OPERATING PLAN

The effective period for this Annual Operating Plan shall be 1 April 2004 to 31 March 2005. The AOP shall be deemed official when all signatories have accepted and signed the document. Updates or amendments may be added upon agreement of all signatories.



**VIII. SIGNATORIES**

/s/ Michael Dudley

Michael Dudley  
Chair, Great Basin Coordinating Group  
USDA Forest Service  
Region 4

Date: 4/16/04

/s/ Richard H. Douglas

Richard H. Douglas  
National Weather Service  
Meteorological Services Division  
Western Region

Date: 4/16/04

/s/ J. Michael Looney

J. Michael Looney  
National Weather Service  
Meteorological Services Division  
Central Region

Date: 4/26/04

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## Appendix A: Organizational Directory and Contact Information

### Eastern Great Basin Coordination Center – Predictive Services

5500 W Amelia Earhart Dr, Ste 270

Salt Lake City, UT 84116

Phone: 801.531.5320 / Fax: 801.531.5321

Web Site Address: [www.blm.gov/utah/egbcc](http://www.blm.gov/utah/egbcc)

<u>Name</u>	<u>Position</u>	<u>Phone</u>	<u>E-Mail</u>
Edward Delgado	Program Manager	(801) 531-5320	Edward_Delgado@blm.gov
Dave Hogan	Meteorologist	(801) 531-5320	Dave_Hogan@blm.gov
Deb Bowen	Intelligence Coord.	(801) 531-5320	dbowen@fs.fed.us
Randy Hart	Center Manager	(801) 531-5320	Randy_Hart@blm.gov

### Western Great Basin Coordination Center – Predictive Services

1340 Financial Blvd

Reno, NV 89502

Phone: 775.861.6455 / Fax: 775.861.6459

Web Site Address: [www.nv.blm.gov/wgbcc/](http://www.nv.blm.gov/wgbcc/)

<u>Name</u>	<u>Position</u>	<u>Phone</u>	<u>E-Mail</u>
Richard Woolley	Program Manager	(775) 861-6455	Richard_Woolley@nv.blm.gov
Fred Svetz	RAWS Coordinator	(775) 861-6455	Fred_Svetz@blm.gov
Kathy Wiegard	Intelligence Coord.	(775) 861-6455	Kathy_Wiegard@nv.blm.gov
Nelda Vorce	Center Manager	(775) 861-6455	Nelda_Vorce@nv.blm.gov

### Boise Weather Forecast Office

NIFC – National Weather Service

3833 S. Development Ave., Bldg 3807

Boise, ID 83705-5354

Phone: Fire Weather Forecaster.....(208) 334-9060  
NIFC Staff Meteorologist.....(208) 334-9824  
Fax.....(208) 334-1662

Web Site Address: [www.boi.noaa.gov/firewx.htm](http://www.boi.noaa.gov/firewx.htm)

<u>Name</u>	<u>Position</u>	<u>E-Mail</u>
Chuck Redman	Program Leader/IMET	Chuck.Redman@noaa.gov
Coleen Decker	Fire Weather Forecaster/IMET	Coleen.Decker@noaa.gov
John Jannuzzi	Meteorologist-in-Charge	John.Jannuzzi@noaa.gov

**Elko Weather Forecast Office**

3720 Paradise Drive  
Elko, NV 89801

Phone: Fire Weather Forecaster.....(775) 778-6720  
Fax..... (775) 778-9786

Web Site Address: [www.wrh.noaa.gov/Elko/firewx/fire.html](http://www.wrh.noaa.gov/Elko/firewx/fire.html)

<u>Name</u>	<u>Position</u>	<u>E-Mail</u>
Brian Fehr	Program Leader/IMET (t)	Brian.Fehr@noaa.gov
Gerald Claycomb	Asst. Program Leader	Gerald.Claycomb@noaa.gov
Kevin Baker	Meteorologist-in-Charge	Kevin.Baker@noaa.gov

**Flagstaff Weather Forecast Office**

P.O. Box 16057  
Bellemont, AZ 86015-6057

Phone: Fire Weather Forecaster.....(928) 556-9409  
Fax.....(928) 556-3914

Web Site Address: [www.wrh.noaa.gov/Flagstaff/fw2.html](http://www.wrh.noaa.gov/Flagstaff/fw2.html)

<u>Name</u>	<u>Position</u>	<u>E-Mail</u>
Dave Foss	Program Leader	Dave.Foss@noaa.gov
Mark Stubblefield	Fire Weather Forecaster/IMET	Mark.Stubblefield@noaa.gov
Brian Klimowski	Meteorologist-in-Charge	Brian.Klimowski@noaa.gov

**Grand Junction Weather Forecast Office**

792 Eagle Drive  
Grand Junction, CO 81506-8648

Phone: Fire Weather Forecaster.....(970) 256-9463  
Fax.....(970) 257-0452

Web Site Address: <http://www.crh.noaa.gov/gjt/fire.php>

<u>Name</u>	<u>Position</u>	<u>E-Mail</u>
Chris Cuoco	Program Leader	Christopher.Cuoco@noaa.gov
Mike Chamberlain	Asst. Program Leader/IMET	Mike.Chamberlain@noaa.gov
Joe Ramey	Fire Weather Forecaster/IMET	Joe.Ramey@noaa.gov
Doug Crowley	Meteorologist-in-Charge	Doug.Crowley@noaa.gov

**Las Vegas Weather Forecast Office**

7851 Industrial Road  
Las Vegas, NV 89139

Phone: Fire Weather Forecaster...(702) 263-9750  
Fax.....(702) 263-9759

Web Site Address: [www.wrh.noaa.gov/lasvegas](http://www.wrh.noaa.gov/lasvegas)

<u>Name</u>	<u>Position</u>	<u>E-Mail</u>
Jim Harrison	Program Leader/IMET	Jim.Harrison@noaa.gov
Kim Runk	Meteorologist-in-Charge	Kim.Runk@noaa.gov

**Pocatello Weather Forecast Office**

1945 Beechcraft Avenue  
Pocatello, ID 83204-7446

Phone: Fire Weather Forecaster.....(208) 232-9357  
Fax.....(208) 232-9264

Web Site Address: [www.wrh.noaa.gov/Pocatello/firewx/index.shtml](http://www.wrh.noaa.gov/Pocatello/firewx/index.shtml)

<u>Name</u>	<u>Position</u>	<u>E-Mail</u>
Bob Survick	Program Leader/IMET	Robert.Survick@noaa.gov
Jack Messick	Asst. Program Leader/IMET	Jack.Messick@noaa.gov
James Meyer	Meteorologist-in-Charge	James.Meyer@noaa.gov

**Reno Weather Forecast Office**

2350 Raggio Parkway  
Reno, NV 89512

Phone: Fire Weather Forecaster.....(775) 673-8105  
Fax.....(775) 673-8110

Web Site Address: [www.wrh.noaa.gov/reno/fire](http://www.wrh.noaa.gov/reno/fire)

<u>Name</u>	<u>Position</u>	<u>E-Mail</u>
Rhett Milne	Program Leader/IMET	Rhett.Milne@noaa.gov
Wendell Hohmann	Fire Weather Forecaster/IMET	Wendell.Hohmann@noaa.gov
Jane Hollingsworth	Meteorologist-in-Charge	Jane.Hollingsworth@noaa.gov

**Riverton Weather Forecast Office**

12744 West Highway 26  
Riverton, WY 82501

Phone: Fire Weather Forecaster.....(307) 857-3869  
Fax.....(307) 857-3861

Web Site Address: [www.crh.noaa.gov/riw/fire.htm](http://www.crh.noaa.gov/riw/fire.htm)

<u>Name</u>	<u>Position</u>	<u>E-Mail</u>
Chuck Baker	Co-Program Leader/IMET	Charles.Baker@noaa.gov
Dave Lipson	Co-Program Leader/IMET	David.Lipson@noaa.gov
Joe Sullivan	Meteorologist-in-Charge	Joe.Sullivan@noaa.gov

**Salt Lake City Weather Forecast Office**

2242 West North Temple  
Salt Lake City, UT 84116

Phone: Fire Weather Forecaster.....(801) 524-5066/4377/4378  
Fax.....(801) 524-4030

Web Site Address: [www.wrh.noaa.gov/Saltlake/fire](http://www.wrh.noaa.gov/Saltlake/fire)

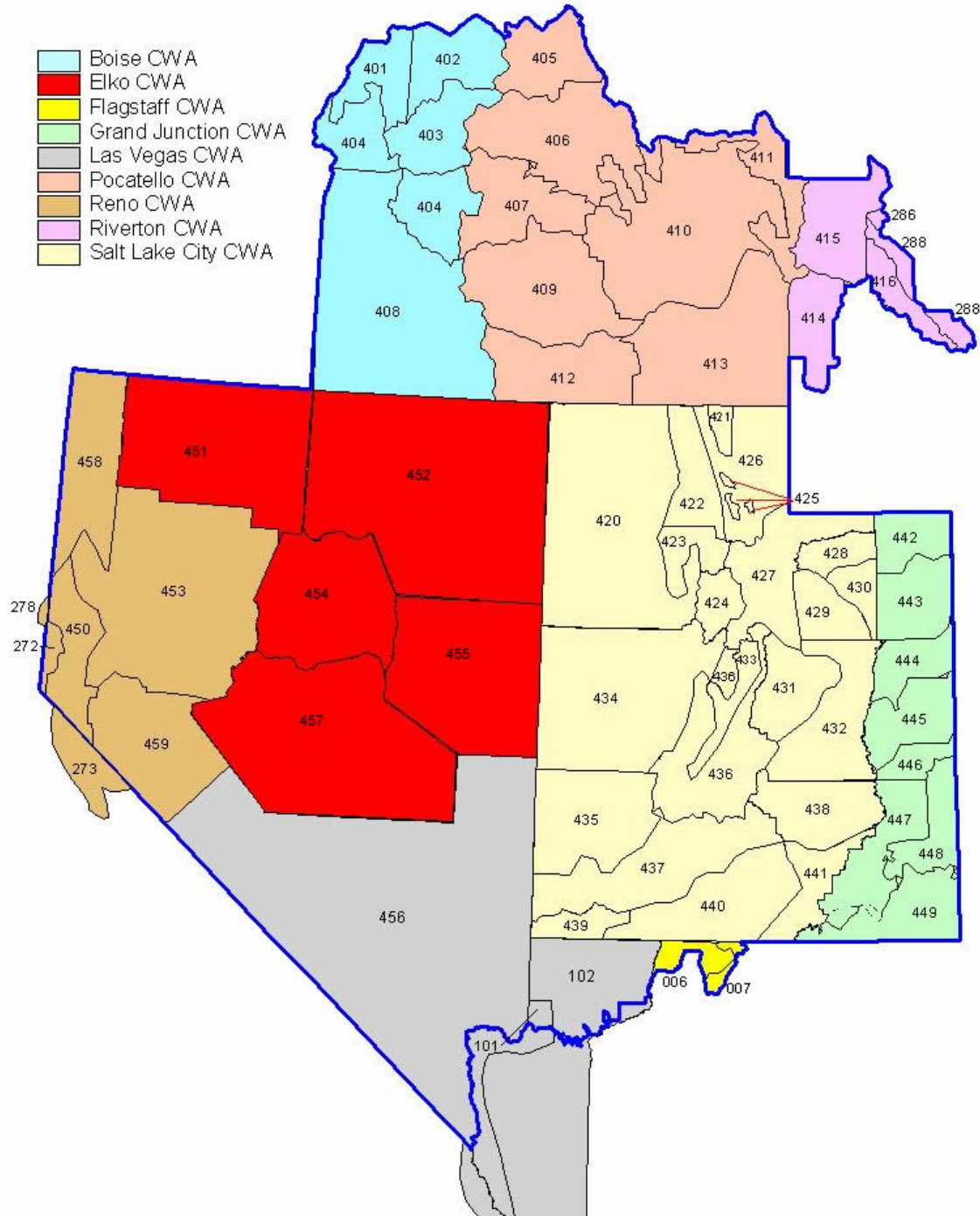
<u>Name</u>	<u>Position</u>	<u>E-Mail</u>
Chris Brenchley	Program Leader/IMET	Christopher.Brenchley@noaa.gov
Andy Church	Fire Weather Forecaster/IMET(t)	Andrew.Church@noaa.gov
Larry Dunn	Meteorologist-in-Charge	Larry.Dunn@noaa.gov

## Appendix B: National Weather Service Offices

### GREAT BASIN FIRE WEATHER ZONES

This section contains the information specific to each NWS Forecast Office. The Great Basin is covered by 10 NWS offices with forecast areas depicted below.

# Great Basin Forecast Zones



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## BOISE WEATHER FORECAST OFFICE

### 1. CHANGES FOR 2004

See Main section of AOP for overall program changes.

**Contact Numbers:** As of March 1<sup>st</sup>, the phone number for the Fire Weather desk will be changed to (208) 334-9060. The primary FAX number will be: (208) 334-1662.

**Red Flag Criteria:** New Red Flag criteria will be implemented for the Great Basin. See page 8. In the Boise CWFA, the criteria will be an RH of 15% or less in with wind gusts 25 mph or greater (forest lands) and gusts 30 mph or greater (BLM lands).

**Personnel:** Coleen Decker has replaced Mike Proud.

**Forecasts:** Wind speeds in the Fire Weather Forecast will include gusts whenever an instantaneous gust exceeds a sustained wind speed of  $\geq 15$  mph (10-minute average) by at least 10 mph (e.g. 15 gust 25 mph).

### 2. HOURS OF OPERATION

Depending on variables such as fuel parameters and customer need, seasonal Fire Weather Hours of Operation will be:

4/19 through 5/16: 0730-1630 MDT,  
Forecast issued once a day NLT 1530 MDT.

5/17 through 10/29: 0730-1630 MDT.  
Forecasts issued twice a day, NLT 0900 and 1530 MDT.

Staff meteorologists will be on duty and available at any time, 24 hours a day, 7 days a week.

### 3. STAFF AND CONTACT INFORMATION

See Appendix A.

### 4. FIRE WEATHER SERVICES

#### A. Description of the Boise Fire Weather District:

West Central Idaho Mountains...

Zone 401 – Western Payette NF and Southern Idaho Timber Protection Agency (SITPA)

Zone 402 – Eastern Payette NF

Zone 403 – Northern Boise NF

Zone 404 – Southern Boise NF and extreme northern Boise BLM

Southwest Idaho / Southeast Oregon...

Zone 636 - Burns BLM south of Highway 20.

Zone 637 - Vale BLM (including Malheur County and far southeastern corner of Baker County).

Zone 408 - Boise BLM (except the extreme northern portion)

See map at end of this section.

#### B. Basic Meteorological Services

**Internet Briefing:** A daily internet briefing will be offered for all agencies at 0930 MDT, seven days a week. This briefing will include a general discussion of weather conditions and forecasts for the current day, as well as a brief discussion of the extended period. Model data, satellite loops, and other items of interest will be

addressed for the forecast period. During the briefing, the appropriate maps will be available via the internet and the Boise Fire Weather website. The briefing will usually last less than 15 minutes but may be longer when fire activity dictates.

**Spot Forecasts:** Requests for spot forecasts will be received via the Boise Fire Weather homepage found at:

<http://www.boi.noaa.gov/fw.htm>

Follow-up phone calls are still encouraged when requesting spot forecasts.

### C. Product Schedule

Morning fire weather forecast	NLT 0900 MDT
Internet briefing	0930 MDT
Afternoon fire weather forecast	NLT 1530 MDT
NFDRS trends forecast	NLT 1545 MDT
Fire Weather Watch / Red Flag Warnings	Event-Driven
Spot forecasts	Upon request

### D. Red Flag Events



**Interagency Coordination:** Before the issuance of a Red Flag Warning, there will be coordination with the affected agencies and neighboring NWS fire weather offices in order to assess fuel conditions and general fire danger.

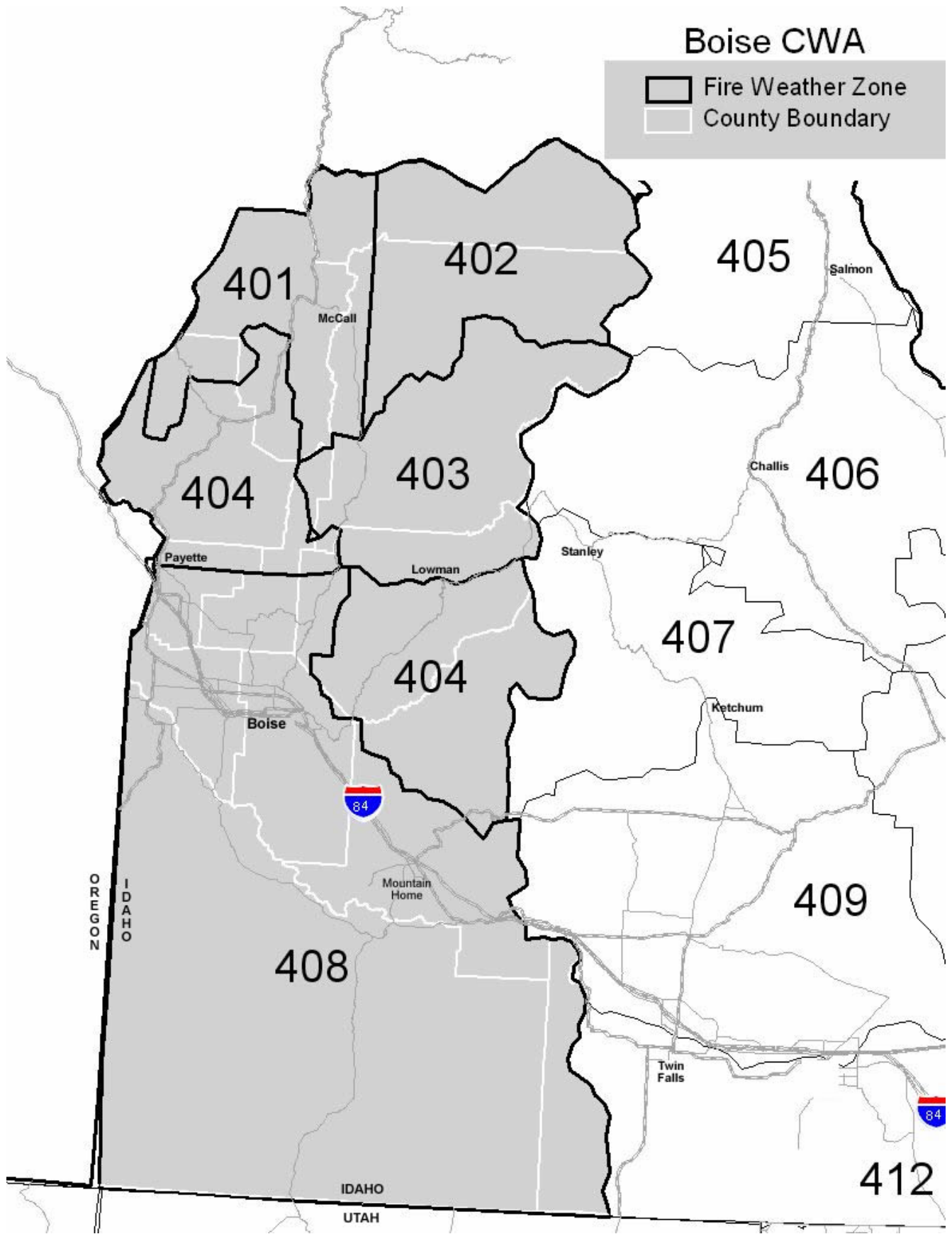
**Dissemination of Fire Weather Watches and Red Flag Warnings:** Each issuance, update or cancellation of a Fire Weather Watch or Red Flag Warning will be relayed by telephone to the dispatch office(s) and GACC affected by the watch/warning.

Criteria for Red Flag Events: Standard criteria have been developed for the Great Basin and can be found starting on page 8. However, local criteria specific to an area may be used in addition to the standard criteria. For the Boise CWFA, the following has been identified:

- A sudden windshift or the passage of a cold front which will result in a windshift or erratic winds in combination with other red flag criteria.

# Boise CWA

-  Fire Weather Zone
-  County Boundary



## ELKO WEATHER FORECAST OFFICE

### 1. CHANGES FOR 2004

See Main section of AOP for overall program changes.

**Red Flag Criteria:** New Red Flag criteria will be implemented for the Great Basin. See page 8.

**Personnel:** Brian Fehr is the new program leader. Gerald Claycomb is the new assistant program leader.

### 2. HOURS OF OPERATION

Depending on variables such as fuel parameters and customer need, seasonal Fire Weather Hours of Operation will be:

5/1 through 10/31: 0800-1600 PDT,  
Forecast issued twice a day NLT 0900 and 1530 PDT.

Staff meteorologists will be on duty and available at any time, 24 hours a day, 7 days a week.

### 3. STAFF AND CONTACT INFORMATION

See Appendix A.

### 4. FIRE WEATHER SERVICES

#### A. Description of the Elko Fire Weather District:

Great Basin Fire Weather Zones...

Zone 451 – Humboldt County.

Zone 452 – Elko County

Zone 454 – Northern Lander/Eureka Counties

Zone 455 – White Pine County

Zone 457 – Southern Lander/Eureka and Northern Nye Counties

See map at end of this section.

#### B. Basic Meteorological Services

**Spot Forecasts:** Requests for spot forecasts will be received via the Elko Fire Weather homepage found at:

<http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=lkn>

Follow-up phone calls are still encouraged when requesting spot forecasts. In the event internet communications are not available, spot requests may be made by fax using the WS Form D-1 or by phone.

Forecast feedback is imperative to improving services. In many cases, the only the forecaster will know what happened on a remote incident is through feedback from the fire community. Phone in concerns or comments about forecasts to the forecaster on duty. Feedback may also be submitted in the remarks section on the next internet request, or by using the feedback option on the already processed internet-based spot forecast. Lastly, block 13 on the WS Form D-1 may be used in subsequent spot forecast requests. If forecasts services or weather conditions significantly impact operations, please notify the Fire Weather Program Leader, via phone or email. See Appendix A for contact information.

#### C. Product Schedule

Morning fire weather forecast  
Afternoon fire weather forecast

NLT 0900 PDT  
NLT 1530 PDT

NFDRS trends forecast  
Fire Weather Watch / Red Flag Warnings  
Spot forecasts

NLT 1545 PDT  
Event-Driven  
Upon request

#### **D. Red Flag Events**

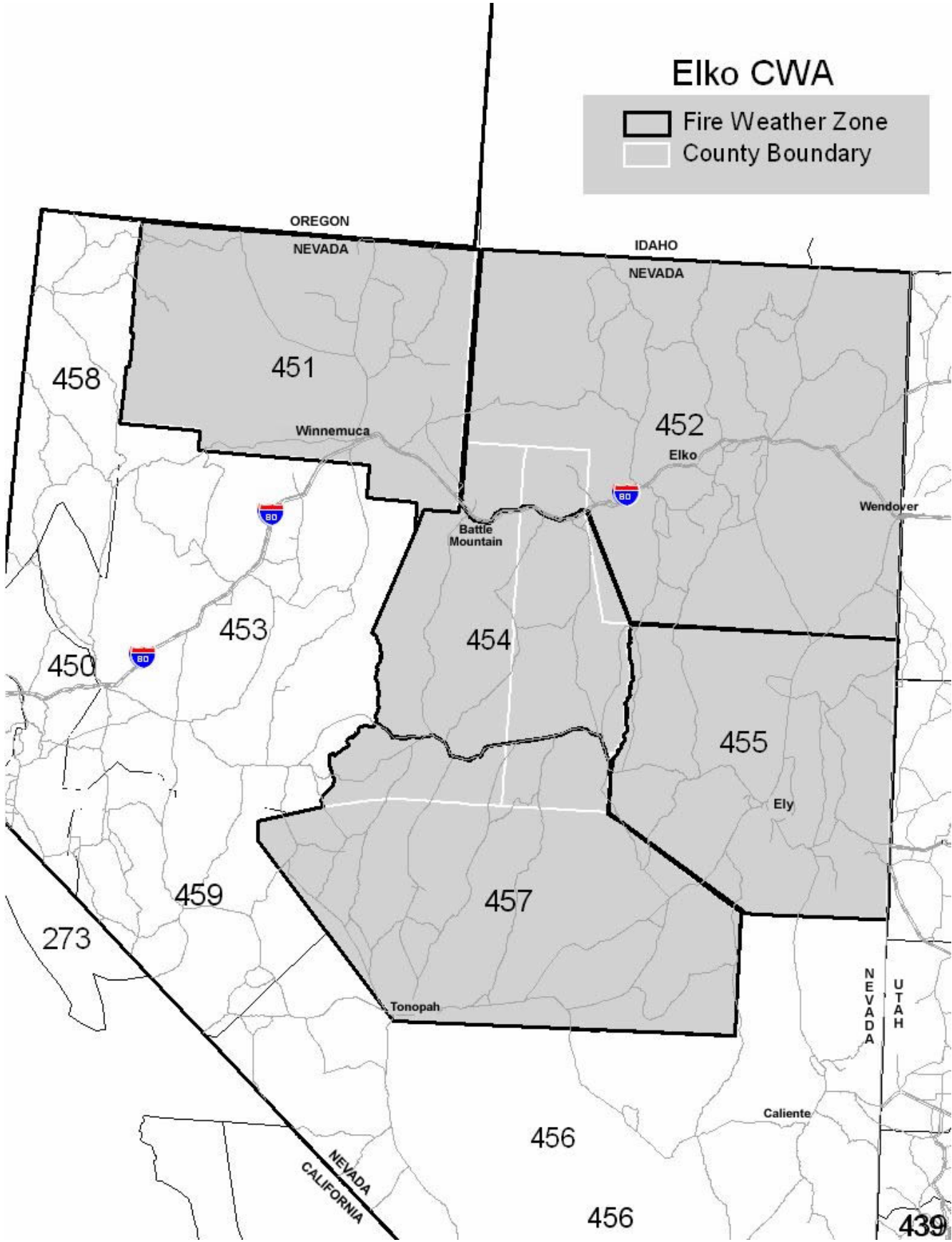
**Interagency Coordination:** Before the issuance of a Red Flag Warning, there will be coordination with the affected agencies and neighboring NWS fire weather offices in order to assess fuel conditions and general fire danger.

**Dissemination of Fire Weather Watches and Red Flag Warnings:** Each issuance, update or cancellation of a Fire Weather Watch or Red Flag Warning will be relayed by telephone to the dispatch office(s) and GACC affected by the watch/warning.

Criteria for Red Flag Events: Standard criteria have been developed for the Great Basin and can be found starting on page 8. However, local criteria specific to an area may be used in addition to the standard criteria.

# Elko CWA

- Fire Weather Zone
- County Boundary



## FLAGSTAFF WEATHER FORECAST OFFICE

### 1. CHANGES FOR 2004

See Main section of AOP for overall program changes.

**Red Flag Criteria:** New Red Flag criteria will be implemented for the Great Basin. See page 8.

### 2. HOURS OF OPERATION

Depending on variables such as fuel parameters and customer need, seasonal Fire Weather Hours of Operation will be:

5/1 through 10/31: 0800-1600 PDT,  
Forecast issued twice a day NLT 0900 and 1530 PDT.

Staff meteorologists will be on duty and available at any time, 24 hours a day, 7 days a week.

### 3. STAFF AND CONTACT INFORMATION

See Appendix A.

### 4. FIRE WEATHER SERVICES

#### A. Description of the Flagstaff Fire Weather District:

Arizona Fire Weather Zones...

Zone 104 – Kaibab Plateau, excluding the Kaibab NF

Zone 105 – Marble and Glenn Canyons north of Colorado River

See map at end of this section.

#### B. Basic Meteorological Services

**Spot Forecasts:** Requests for spot forecasts will be received via the Flagstaff Fire Weather homepage found at:

[http://www.wrh.noaa.gov/cgi-bin/ifps\\_spot/spotmon?site=fgz](http://www.wrh.noaa.gov/cgi-bin/ifps_spot/spotmon?site=fgz)

Follow-up phone calls are still encouraged when requesting spot forecasts. In the event internet communications are not available, spot requests may be made by fax using the WS Form D-1 or by phone.

Forecast feedback is imperative to improving services. In many cases, the only the forecaster will know what happened on a remote incident is through feedback from the fire community. Phone in concerns or comments about forecasts to the forecaster on duty. Feedback may also be submitted in the remarks section on the next internet request, or by using the feedback option on the already processed internet-based spot forecast. Lastly, block 13 on the WS Form D-1 may be used in subsequent spot forecast requests. If forecasts services or weather conditions significantly impact operations, please notify the Fire Weather Program Leader, via phone or email. See Appendix A for contact information.

#### C. Product Schedule

Morning fire weather forecast	NLT 0900 MDT
Afternoon fire weather forecast	NLT 1530 MDT
NFDRS trends forecast	NLT 1545 MDT
Fire Weather Watch / Red Flag Warnings	Event-Driven
Spot forecasts	Upon request

#### D. Red Flag Events

**Interagency Coordination:** Before the issuance of a Red Flag Warning, there will be coordination with the affected agencies and neighboring NWS fire weather offices in order to assess fuel conditions and general fire danger.

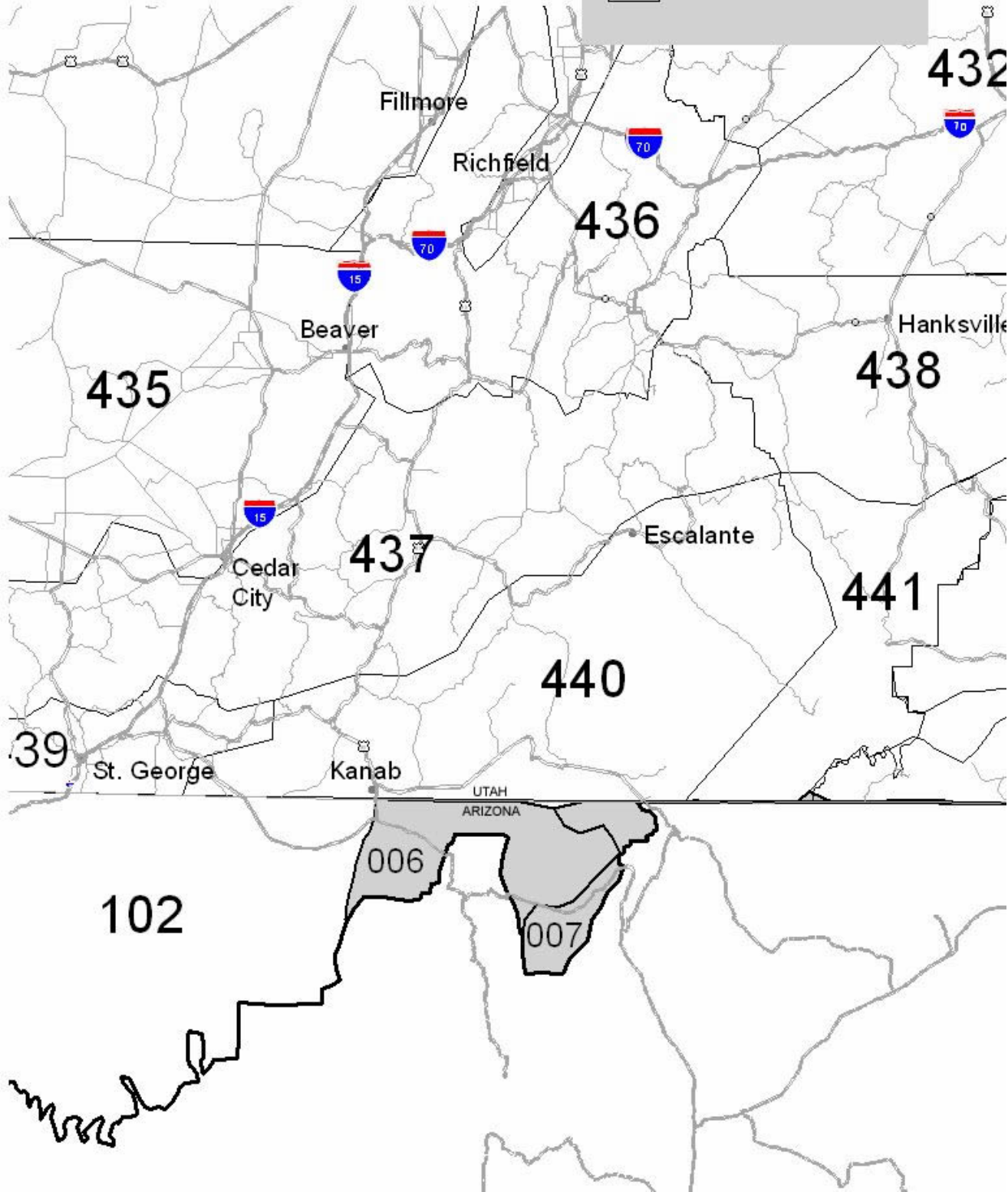
**Dissemination of Fire Weather Watches and Red Flag Warnings:** Each issuance, update or cancellation of a Fire Weather Watch or Red Flag Warning will be relayed by telephone to the dispatch office(s) and GACC affected by the watch/warning.

Criteria for Red Flag Events: Standard criteria have been developed for the Great Basin and can be found starting on page 8. However, local criteria specific to an area may be used in addition to the standard criteria.



# Flagstaff CWA

Fire Weather Zone



## GRAND JUNCTION WEATHER FORECAST OFFICE

### 1. CHANGES FOR 2004

See Main section of AOP for overall program changes.

**Forecasts Issuance:** WFO Grand Junction will produce one fire weather planning forecast (FWF) per day, seven days a week from April 1 to April 30. From May 1 to October 31, forecasters will produce two forecasts per day.

### 2. HOURS OF OPERATION

Depending on variables such as fuel parameters and customer need, seasonal Fire Weather Hours of Operation will be:

4/1 through 4/30: 0800-1600 MDT,  
Forecast issued once a day NLT 1530 MDT for Colorado.

5/1 through 10/31: 0800-1600 MDT.  
Forecasts issued twice a day, NLT 0800 and 1530 MDT, expanding into Utah.

Staff meteorologists will be on duty and available at any time, 24 hours a day, 7 days a week.

### 3. STAFF AND CONTACT INFORMATION

See Appendix A.

### 4. FIRE WEATHER SERVICES

#### A. Description of the Grand Junction Fire Weather District:

The following zone groupings will be used for all products except the Fire Weather Forecast (FWF):

Eastern Utah...  
Zone 442 through 449

See map at end of this section.

The following zone groupings will be used for the Grand Junction Fire Weather Forecast (FWF) only:

Northeast Utah (Uinta IFC)  
Zone 428 – Western Uinta Mountains  
Zone 429 – West Tavaputs Plateau and surrounding ranges  
Zone 430 – Western Uinta Basin  
Zone 442 – Eastern Uinta Mountains  
Zone 443 – Eastern Uinta Basin  
Zone 444 – Northern Roan and East Tavaputs Plateaus and surrounding ranges

#### B. Spot Forecasts

The Grand Junction office prepares spot weather forecasts for prescribed burns and wildfires as requested for locations within the office's CWFA.

The primary means of requesting and disseminating spot forecasts is the NWS Spot Internet-based spot request and reply program, found at:

<http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=gjt>

When internet or computer capabilities are not available, fax or phone can be used to request a spot forecast.

To ensure receipt by the fire weather forecaster, the requester should call the NWS after submitting each spot request. If you have not indicated on the spot request, during your follow-up telephone, please tell the forecaster that your request is for a wildfire or a prescribed burn, so that your request can receive the proper priority. This call to the WFO will also allow the fire weather forecaster to ask any questions he/she might have, and inform you if multiple spot requests may delay completing your forecast. WFO Grand Junction will show the same courtesy by calling the requesting agency after each completed spot forecast is transmitted.

Spot forecasts will be available 24 hours a day for wildfires and will receive the same priority as severe weather warnings. For prescribed burns, delays may occur due to priority of duties and office staffing. Delays may also occur if severe weather or flash flood watches or warnings are in effect in the WFO Grand Junction CWFA. If a spot forecast has not been returned after 60 minutes, call the WFO to check on the status to determine if there has been a communications system failure, or a significant weather event, that may have delayed completion.

When requesting a non-wildfire spot forecast any time of year, it is strongly suggested that requests NOT be made between 1100 and 1500. Requests made during this time will occur during the key preparation period for the afternoon fire weather forecasts and will result in a delay between the request and receipt of a spot forecast.

Certain prescribed burns will be considered high risk for significant smoke impacts, as determined by the Smoke Risk Rating Worksheet for Prescribed Fire Projects, which is part of the Colorado Memorandum of Understanding (MOU). These burns could either be Category III or Category IV burns, and REQUIRE detailed observations at least 3 days prior to burn. Consultation with the fire weather program leader or assistant program leader, well in advance of the scheduled burn date, daily feedback, and fire line observations throughout the course of the project are required by the Smoke Risk Rating Worksheet and the Colorado MOU.

### C. Product Schedule

Morning fire weather forecast	NLT 0900 MDT
Afternoon fire weather forecast	NLT 1530 MDT
NFDRS trends forecast	NLT 1545 MDT
Fire Weather Watch / Red Flag Warnings	Event-Driven
Spot forecasts	Upon request

### D. Red Flag Events

**Interagency Coordination:** Before the issuance of a Red Flag Warning, there will be coordination with the affected agencies and neighboring NWS fire weather offices in order to assess fuel conditions and general fire danger.

**Dissemination of Fire Weather Watches and Red Flag Warnings:** Each issuance, update or cancellation of a Fire Weather Watch or Red Flag Warning will be relayed by telephone to the dispatch office(s) and GACC affected by the watch/warning.

Criteria for Red Flag Events: Standard criteria have been developed for the Great Basin and can be found starting on page 8. However, local criteria specific to an area may be used in addition to the standard criteria.

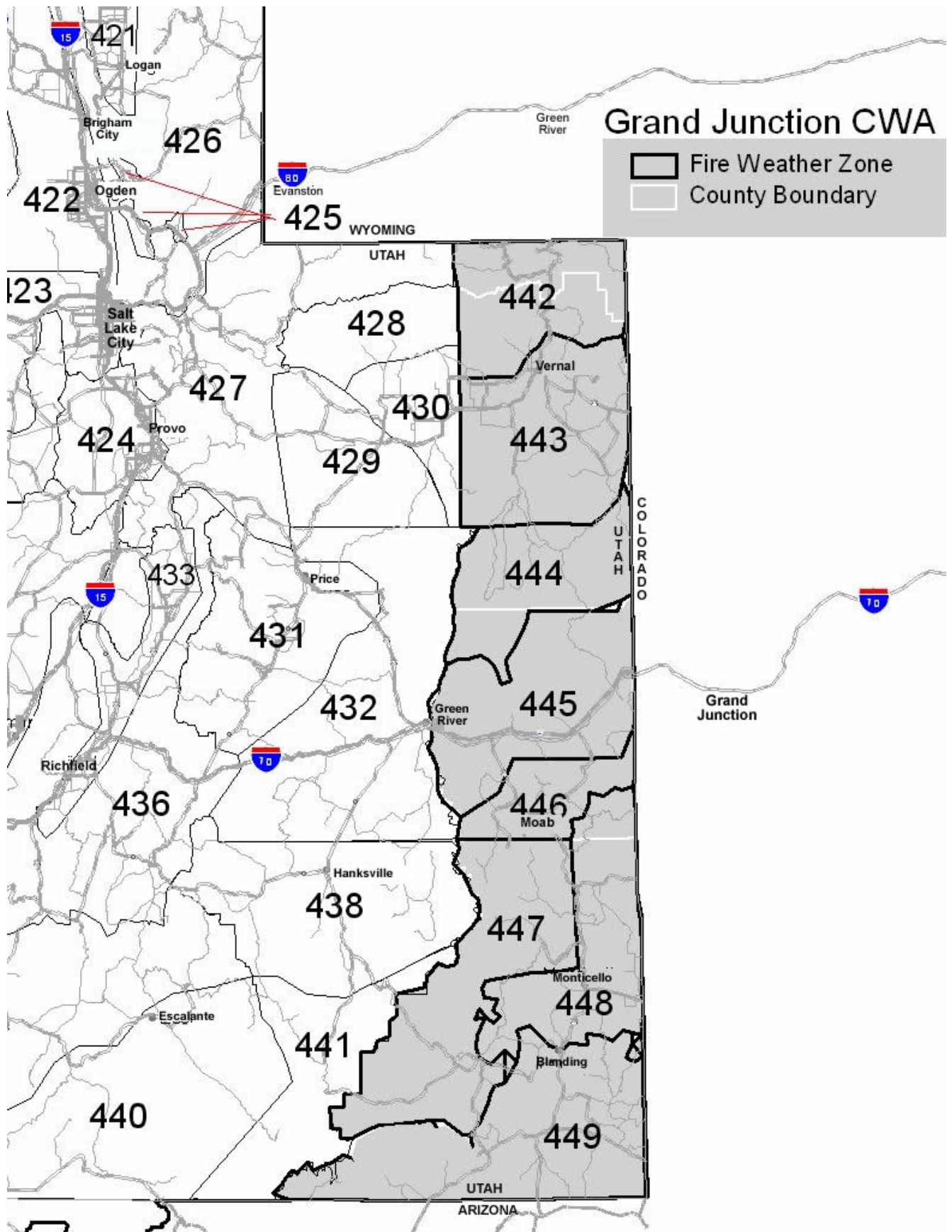
### E. Smoke Management Forecast

This forecast is issued no later than 1600 during the fire season. It is a separate product from the afternoon forecast and is valid for the tonight and tomorrow periods. The Smoke Management Forecast includes a brief discussion of airmass stability and meteorological parameters that may affect smoke dispersal. The forecast

also includes a forecast of transport winds, mixing heights and a ventilation index (clearing index for eastern Utah) for the tonight and tomorrow time periods.

#### **F. Incident Meteorologists (IMETs)**

The Grand Junction office has two certified IMETs available for dispatch to major forest fires and incidents. Dispatch for significant prescribed burn projects, i.e., CAT III and CAT IV burns, will only be possible when coordination with the fire weather program leader and WFO Meteorologist-in-Charge (MIC) has been accomplished well in advance (months in advance) of the project and only when NWS manpower and resources permit.



## LAS VEGAS WEATHER FORECAST OFFICE

### 1. CHANGES FOR 2004

See Main section of AOP for overall program changes.

**Red Flag Criteria:** New Red Flag criteria will be implemented for the Great Basin. See page 8.

### 2. HOURS OF OPERATION

Depending on variables such as fuel parameters and customer need, seasonal Fire Weather Hours of Operation will be:

5/1 through 10/31: 0800-1600 PDT,  
Forecast issued twice a day NLT 0900 and 1530 PDT.

Staff meteorologists will be on duty and available at any time, 24 hours a day, 7 days a week.

### 3. STAFF AND CONTACT INFORMATION

See Appendix A.

### 4. FIRE WEATHER SERVICES

#### A. Description of the Las Vegas Fire Weather District:

Nevada Fire Weather Zones...

Zone 456 – Esmerelda, Lincoln, Clark, and southern Nye Counties

Arizona Fire Weather Zones...

Zone 101 – Lake Mead and Lower Colorado River Valley

Zone 102 – Northwest Plateau and Northwest Deserts

See map at end of this section.

#### B. Basic Meteorological Services

**Spot Forecasts:** Requests for spot forecasts will be received via the Las Vegas Fire Weather homepage found at:

[http://www.wrh.noaa.gov/cgi-bin/ifps\\_spot/spotmon?site=vef](http://www.wrh.noaa.gov/cgi-bin/ifps_spot/spotmon?site=vef)

Follow-up phone calls are still encouraged when requesting spot forecasts. In the event internet communications are not available, spot requests may be made by fax using the WS Form D-1 or by phone.

Forecast feedback is imperative to improving services. In many cases, the only the forecaster will know what happened on a remote incident is through feedback from the fire community. Phone in concerns or comments about forecasts to the forecaster on duty. Feedback may also be submitted in the remarks section on the next internet request, or by using the feedback option on the already processed internet-based spot forecast. Lastly, block 13 on the WS Form D-1 may be used in subsequent spot forecast requests. If forecasts services or weather conditions significantly impact operations, please notify the Fire Weather Program Leader, via phone or email. See Appendix A for contact information.

#### C. Product Schedule

Morning fire weather forecast	NLT 0900 PDT
Afternoon fire weather forecast	NLT 1530 PDT
NFDRS trends forecast	NLT 1545 PDT

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Fire Weather Watch / Red Flag Warnings  
Spot forecasts

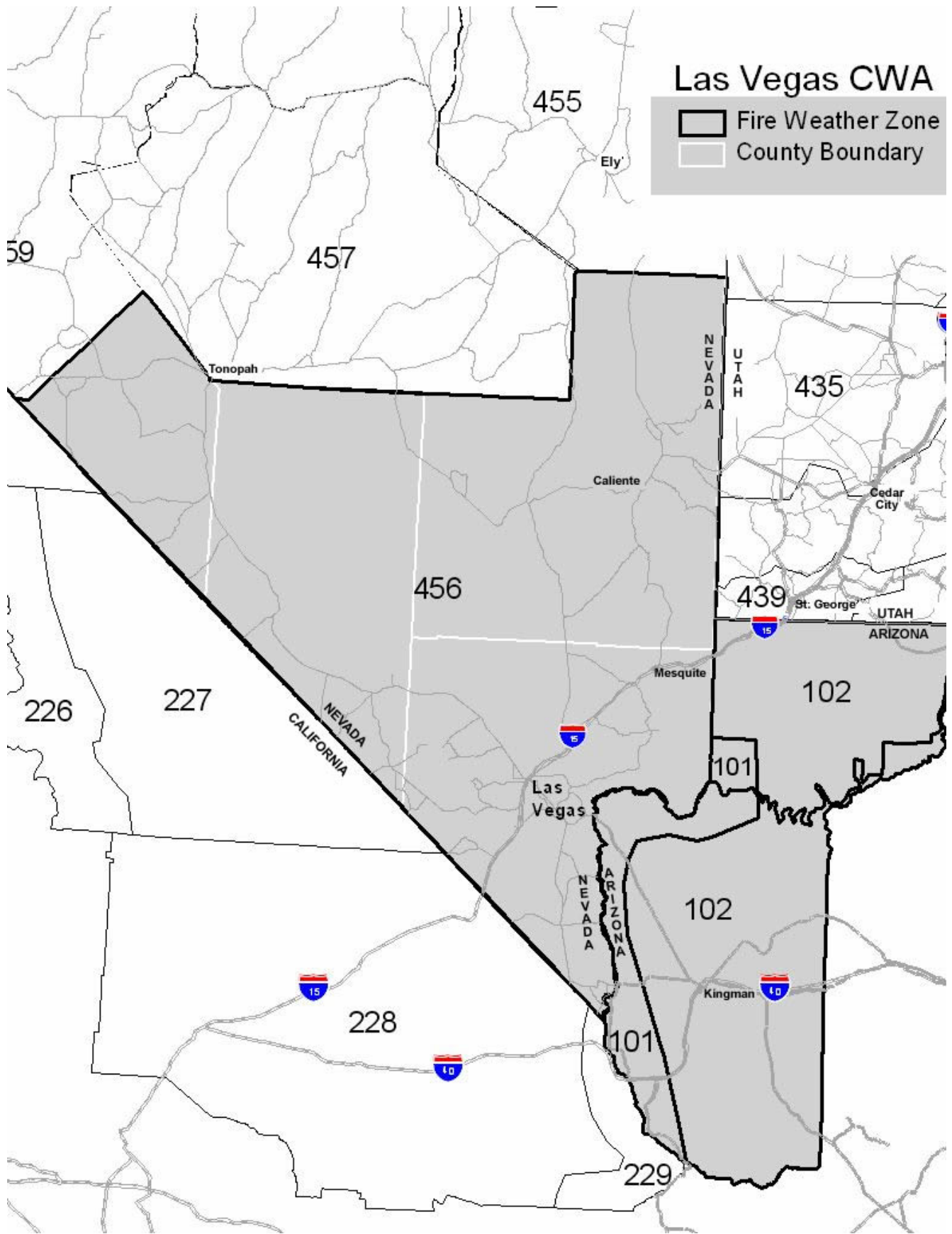
Event-Driven  
Upon request

#### **D. Red Flag Events**

**Interagency Coordination:** Before the issuance of a Red Flag Warning, there will be coordination with the affected agencies and neighboring NWS fire weather offices in order to assess fuel conditions and general fire danger.

**Dissemination of Fire Weather Watches and Red Flag Warnings:** Each issuance, update or cancellation of a Fire Weather Watch or Red Flag Warning will be relayed by telephone to the dispatch office(s) and GACC affected by the watch/warning.

Criteria for Red Flag Events: Standard criteria have been developed for the Great Basin and can be found starting on page 8. However, local criteria specific to an area may be used in addition to the standard criteria.





## POCATELLO WEATHER FORECAST OFFICE

### 1. CHANGES FOR 2004

See Main section of AOP for overall program changes.

**Red Flag Criteria:** New Red Flag criteria will be implemented for the Great Basin. See page 8. In the Pocatello CWFA, the criteria will be an RH of 15% or less in with wind gusts 25 mph or greater (mountains) and gusts 30 mph or greater (Snake River Plain).

### 2. HOURS OF OPERATION

Depending on variables such as fuel parameters and customer need, seasonal Fire Weather Hours of Operation will be:

4/19 through 5/16: 0800-1600 MDT,  
Forecast issued once a day NLT 1530 MDT.

5/17 through 10/29: 0800-1600 MDT.  
Forecasts issued twice a day, NLT 0900 and 1530 MDT.

Staff meteorologists will be on duty and available at any time, 24 hours a day, 7 days a week.

### 3. STAFF AND CONTACT INFORMATION

See Appendix A.

### 4. FIRE WEATHER SERVICES

#### A. Description of the Pocatello Fire Weather District:

East Central Idaho Mountains...

Zone 405 – Northern Salmon-Challis NF, portions of Upper Columbia-Salmon Clearwater BLM District east of Middle Fork of Salmon River

Zone 406 – Southern Salmon-Challis NF, portions of Upper Columbia-Salmon Clearwater BLM District east of Middle Fork of Salmon River.

Zone 407 – Northern Sawtooth NF, Sawtooth NRA, southeastern Salmon-Challis NF

Upper Snake River Plain...

Zone 409 – Upper Snake River BLM District north of Snake River, including Minidoka NWR

Zone 410 – Northeastern Upper Snake River BLM District, Craters of the Moon NM, Camas NWR, Idaho State Land Department – Cotton Protective District, southeastern Birch Creek and Little Lost River Valleys

Southeast Idaho Highlands...

Zone 412 – Southern Sawtooth NF, Upper Snake River BLM District south of Snake River

Zone 413 – Caribou-Targhee NF south of Palisades Reservoir, portion of Upper Snake River BLM District east of Snake River, Grays Lake NWR, Bear Lake NWR.

Upper Snake Highlands...

Zone 411 – Caribou-Targhee NF north of Palisades Reservoir, excluding eastern slope of Lemhi Mountain Range.

See map at end of this section.

#### B. Basic Meteorological Services

**Spot Forecasts:** Requests for spot forecasts will be received via the Pocatello Fire Weather homepage found

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at:

<http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=pih>

Follow-up phone calls are still encouraged when requesting spot forecasts. In the event internet communications are not available, spot requests may be made by fax using the WS Form D-1 or by phone.

Forecast feedback is imperative to improving services. In many cases, the only the forecaster will know what happened on a remote incident is through feedback from the fire community. Phone in concerns or comments about forecasts to the forecaster on duty. Feedback may also be submitted in the remarks section on the next internet request, or by using the feedback option on the already processed internet-based spot forecast. Lastly, block 13 on the WS Form D-1 may be used in subsequent spot forecast requests. If forecasts services or weather conditions significantly impact operations, please notify Bob Survick, Fire Weather Program Leader, via phone or email. See Appendix A for contact information.

### C. Product Schedule

Morning fire weather forecast	NLT 0900 MDT
Afternoon fire weather forecast	NLT 1530 MDT
NFDRS trends forecast	NLT 1545 MDT
Fire Weather Watch / Red Flag Warnings	Event-Driven
Spot forecasts	Upon request

### D. Red Flag Events

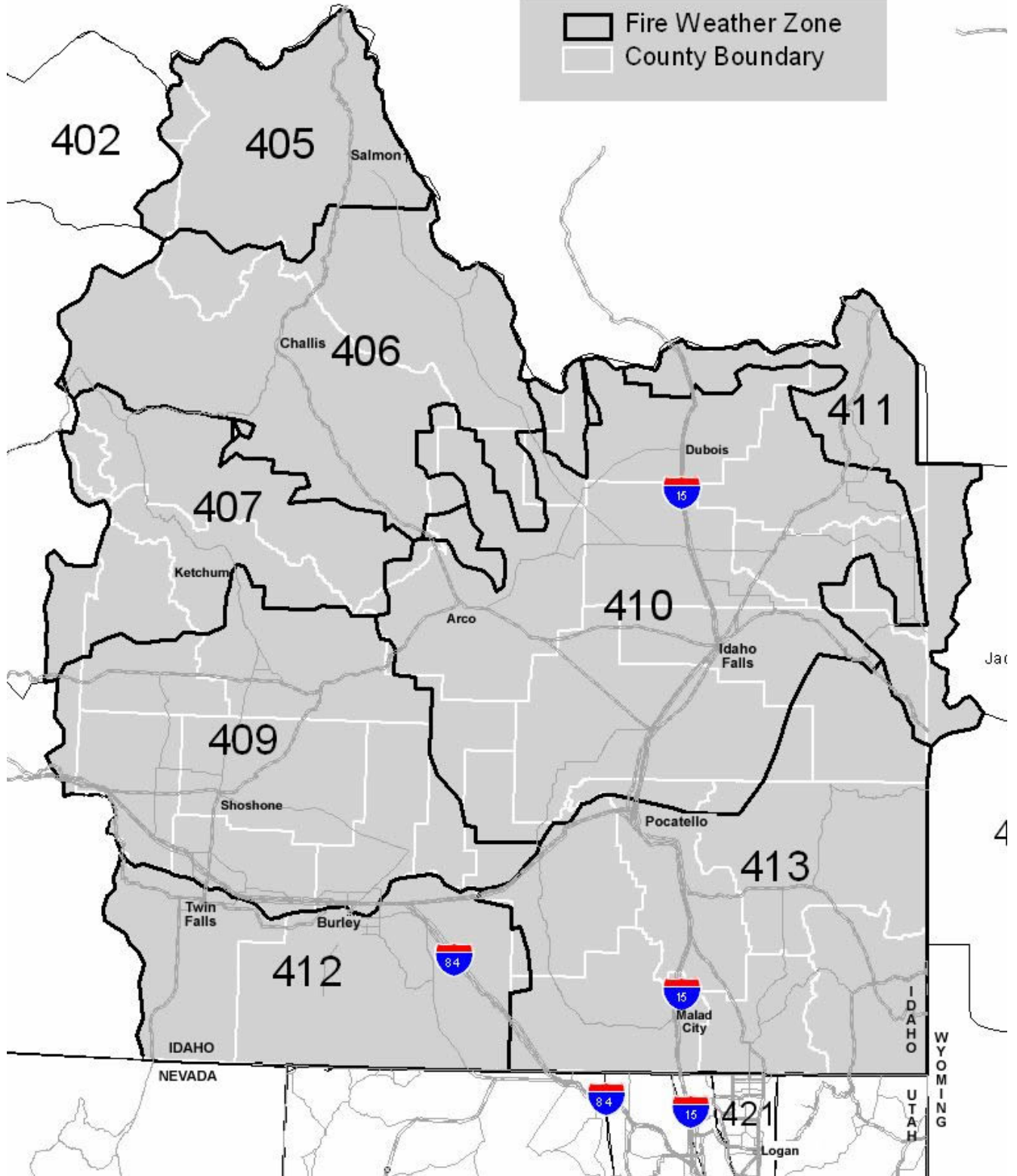
**Interagency Coordination:** Before the issuance of a Red Flag Warning, there will be coordination with the affected agencies and neighboring NWS fire weather offices in order to assess fuel conditions and general fire danger.

**Dissemination of Fire Weather Watches and Red Flag Warnings:** Each issuance, update or cancellation of a Fire Weather Watch or Red Flag Warning will be relayed by telephone to the dispatch office(s) and GACC affected by the watch/warning.

Criteria for Red Flag Events: Standard criteria have been developed for the Great Basin and can be found starting on page 8. However, local criteria specific to an area may be used in addition to the standard criteria.

# Pocatello CWA

- Fire Weather Zone
- County Boundary



## RENO WEATHER FORECAST OFFICE

### 1. CHANGES FOR 2004

See Main section of AOP for overall program changes.

**Red Flag Criteria:** New Red Flag criteria will be implemented for the Great Basin. See page 8.

### 2. HOURS OF OPERATION

Depending on variables such as fuel parameters and customer need, seasonal Fire Weather Hours of Operation will be:

5/1 through 10/31: 0800-1600 PDT,  
Forecast issued twice a day NLT 0900 and 1530 PDT.

Staff meteorologists will be on duty and available at any time, 24 hours a day, 7 days a week.

### 3. STAFF AND CONTACT INFORMATION

See Appendix A.

### 4. FIRE WEATHER SERVICES

#### A. Description of the Reno Fire Weather District:

Great Basin Fire Weather Zones...

Zone 450 – Extreme western Nevada.

Zone 453 – West central Nevada

Zone 458 – Extreme northwest Nevada

Zone 459 – Mineral and southern Lyon Counties

See map at end of this section.

#### B. Basic Meteorological Services

**Spot Forecasts:** Requests for spot forecasts will be received via the Reno Fire Weather homepage found at:

<http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=rev>

Follow-up phone calls are still encouraged when requesting spot forecasts. In the event internet communications are not available, spot requests may be made by fax using the WS Form D-1 or by phone.

Forecast feedback is imperative to improving services. In many cases, the only the forecaster will know what happened on a remote incident is through feedback from the fire community. Phone in concerns or comments about forecasts to the forecaster on duty. Feedback may also be submitted in the remarks section on the next internet request, or by using the feedback option on the already processed internet-based spot forecast. Lastly, block 13 on the WS Form D-1 may be used in subsequent spot forecast requests. If forecasts services or weather conditions significantly impact operations, please notify the Fire Weather Program Leader, via phone or email. See Appendix A for contact information.

#### C. Product Schedule

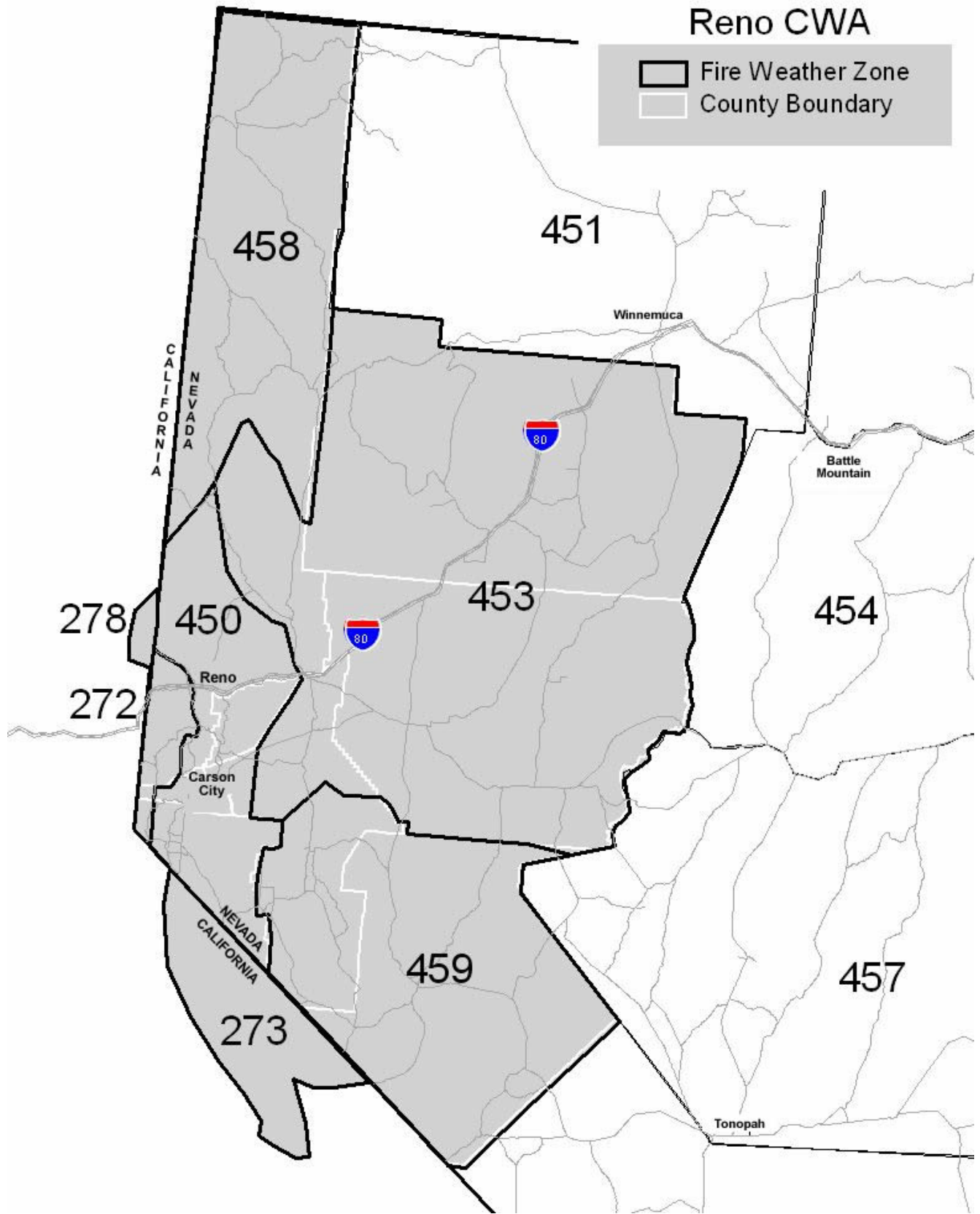
Morning fire weather forecast	NLT 0900 PDT
Afternoon fire weather forecast	NLT 1530 PDT
NFDRS trends forecast	NLT 1545 PDT
Fire Weather Watch / Red Flag Warnings	Event-Driven
Spot forecasts	Upon request

#### **D. Red Flag Events**

**Interagency Coordination:** Before the issuance of a Red Flag Warning, there will be coordination with the affected agencies and neighboring NWS fire weather offices in order to assess fuel conditions and general fire danger.

**Dissemination of Fire Weather Watches and Red Flag Warnings:** Each issuance, update or cancellation of a Fire Weather Watch or Red Flag Warning will be relayed by telephone to the dispatch office(s) and GACC affected by the watch/warning.

Criteria for Red Flag Events: Standard criteria have been developed for the Great Basin and can be found starting on page 8. However, local criteria specific to an area may be used in addition to the standard criteria.



## RIVERTON WEATHER FORECAST OFFICE

### 1. CHANGES FOR 2004

See Main section of AOP for overall program changes.

**Red Flag Criteria:** New Red Flag criteria will be implemented for the Great Basin. See page 8.

### 2. HOURS OF OPERATION

Depending on variables such as fuel parameters and customer need, seasonal Fire Weather Hours of Operation will be:

5/1 through 10/31: 0800-1600 MDT,  
Forecast issued twice a day NLT 0900 and 1530 MDT.

Staff meteorologists will be on duty and available at any time, 24 hours a day, 7 days a week.

### 3. STAFF AND CONTACT INFORMATION

See Appendix A.

### 4. FIRE WEATHER SERVICES

#### A. Description of the Riverton Fire Weather District:

Great Basin Fire Weather Zones...

Zone 414 – Bridger-Teton NF and surrounding mountainous terrain in Lincoln, western Uinta, and western Sublette Counties west of Highway 189/191

Zone 416 – Bridger-Teton NF and surrounding mountainous terrain in Sublette County east of Highway 189/191, and a small portion of Fremont County west of South Pass

Zone 415 – Bridger-Teton NF in extreme western Fremont County and southwest Park County, Teton County excluding the Targhee NF, extreme northwest Sublette County.

See map at end of this section.

#### B. Basic Meteorological Services

**Spot Forecasts:** Requests for spot forecasts will be received via the Riverton Fire Weather homepage found at:

[http://www.wrh.noaa.gov/cgi-bin/ifps\\_spot/spotmon?site=riw](http://www.wrh.noaa.gov/cgi-bin/ifps_spot/spotmon?site=riw)

Follow-up phone calls are still encouraged when requesting spot forecasts. In the event internet communications are not available, spot requests may be made by fax using the WS Form D-1 or by phone.

Forecast feedback is imperative to improving services. In many cases, the only the forecaster will know what happened on a remote incident is through feedback from the fire community. Phone in concerns or comments about forecasts to the forecaster on duty. Feedback may also be submitted in the remarks section on the next internet request, or by using the feedback option on the already processed internet-based spot forecast. Lastly, block 13 on the WS Form D-1 may be used in subsequent spot forecast requests. If forecasts services or weather conditions significantly impact operations, please notify the Fire Weather Program Leader, via phone or email. See Appendix A for contact information.

#### C. Product Schedule

Morning fire weather forecast	NLT 0900 MDT
Afternoon fire weather forecast	NLT 1530 MDT
NFDRS trends forecast	NLT 1545 MDT

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Fire Weather Watch / Red Flag Warnings  
Spot forecasts

Event-Driven  
Upon request

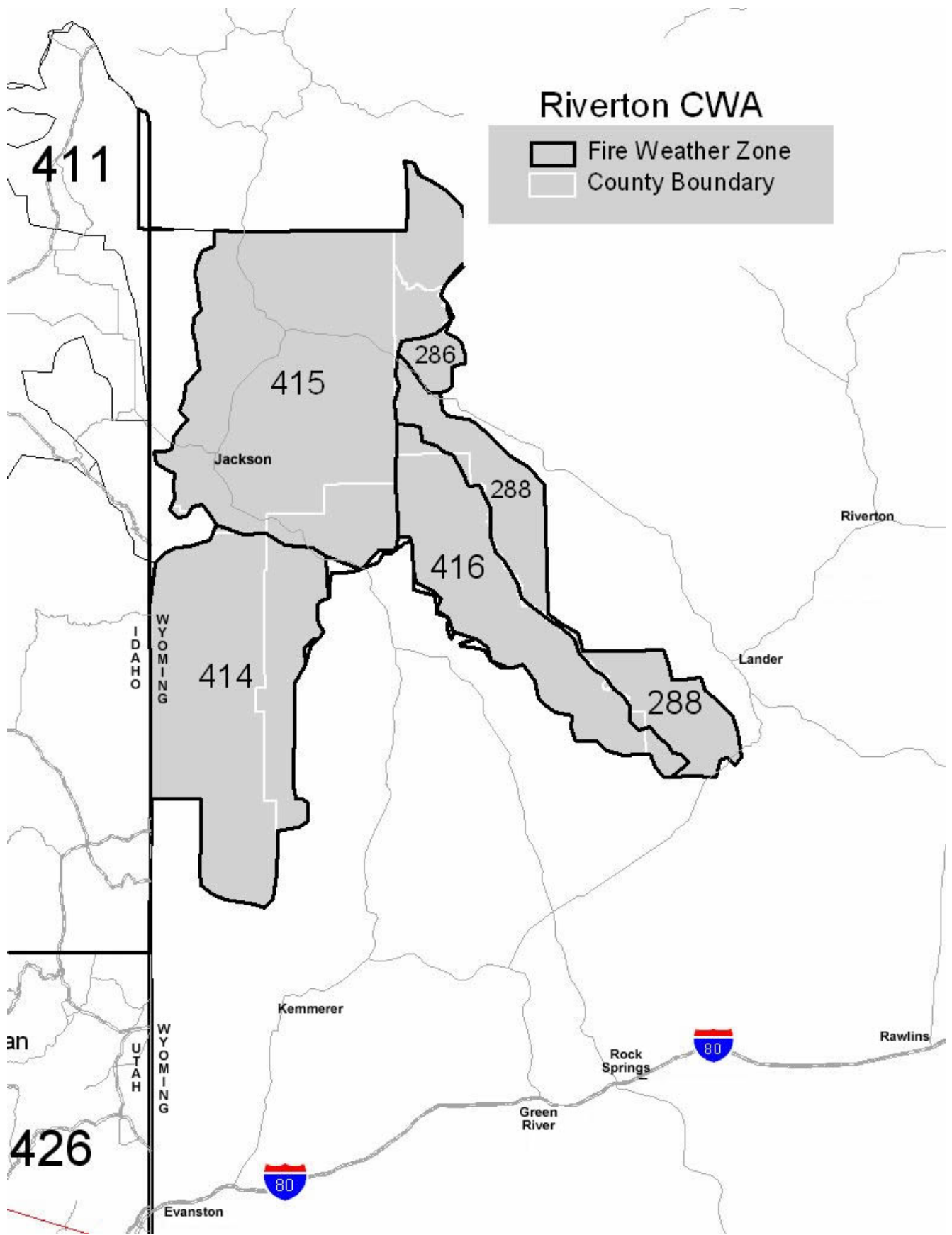
#### **D. Red Flag Events**

**Interagency Coordination:** Before the issuance of a Red Flag Warning, there will be coordination with the affected agencies and neighboring NWS fire weather offices in order to assess fuel conditions and general fire danger.

**Dissemination of Fire Weather Watches and Red Flag Warnings:** Each issuance, update or cancellation of a Fire Weather Watch or Red Flag Warning will be relayed by telephone to the dispatch office(s) and GACC affected by the watch/warning.

Criteria for Red Flag Events: Standard criteria have been developed for the Great Basin and can be found starting on page 8. However, local criteria specific to an area may be used in addition to the standard criteria. For Riverton, red flag criteria will include 25 mph sustained wind (20-foot, 10-minute average).





## **SALT LAKE CITY WEATHER FORECAST OFFICE**

### **1. CHANGES FOR 2004**

See main section of AOP for overall program changes.

- Fire Weather Forecast Zones will be grouped according to land agency dispatch centers. Salt Lake City will provide the Fire Weather Forecast (pre-suppression) for the Moab Dispatch area. All other products (Spots, NFDRS, etc.) will be handled as before.
- Spot forecasts will include 20-foot winds as standard. (Eye-level winds available upon request)
- Fire Weather Forecast will include one extended forecast for the entire Salt Lake City Fire Weather District.
- Addition of Day 3 Graphical Clearing Index forecast to the fire weather webpage. Also, addition of new, experimental web based "point-and-click" forecast tools and planners online during the fire season.

### **2. HOURS OF OPERATION**

Depending on variables such as fuel parameters and customer need, seasonal Fire Weather Hours of Operation will be:

5/1 through 10/31: 0700-1600 MDT,  
Forecast issued twice a day, NLT 0900 and 1530 MDT.

Staff meteorologists will be on duty and available at any time, 24 hours a day, 7 days a week.

### **3. STAFF AND CONTACT INFORMATION**

See Appendix A.

### **4. FIRE WEATHER SERVICES**

#### **A. Description of the Salt Lake City Fire Weather District:**

The following zone groupings will be used for all products except the Fire Weather Forecast (FWF):

#### Northern Utah

- Zone 420 – Great Salt Lake Desert and Mountains
- Zone 421 – Cache Valley
- Zone 422 – Northern Wasatch Front
- Zone 423 – Salt Lake and Tooele Valleys
- Zone 424 – Southern Wasatch Front
- Zone 425 – Wasatch Mountain Valleys
- Zone 426 – Wasatch Mountains north of Interstate 80
- Zone 427 – Wasatch Mountains south of Interstate 80

#### Northeast Utah

- Zone 428 – Western Uinta Mountains
- Zone 429 – West Tavaputs Plateau and surrounding ranges
- Zone 430 – Western Uinta Basin

#### East Central Utah

- Zone 431 – Castle Valley
- Zone 432 – San Rafael Swell and Desert

#### West Central Utah...

- Zone 433 – San Pete and Sevier Valleys

Zone 434 – West Central Deserts and Mountains  
Zone 436 – Central Utah Mountains  
Zone 438 – Henry Mountains

Southern Utah

Zone 435 – Southwest Deserts and Mountains  
Zone 437 – Southwest and South Central Mountains  
Zone 439 – Utah's Dixie and Zion Canyon  
Zone 440 – South Central Utah  
Zone 441 – Glen Canyon National Recreation Area/Lake Powell

See map at end of this section.

The following zone groupings will be used for the Salt Lake City Fire Weather Forecast (FWF) only:

Northern Utah (Northern Utah IFC)

Zone 420 – Great Salt Lake Desert and Mountains  
Zone 421 – Cache Valley  
Zone 422 – Northern Wasatch Front  
Zone 423 – Salt Lake and Tooele Valleys  
Zone 424 – Southern Wasatch Front  
Zone 425 – Wasatch Mountain Valleys  
Zone 426 – Wasatch Mountains north of Interstate 80  
Zone 427 – Wasatch Mountains south of Interstate 80

East Central Utah (Moab IFC)

Zone 431 – Castle Valley  
Zone 432 – San Rafael Swell and Desert  
Zone 445 – Grand Flat, Roan and Book Cliffs  
Zone 446 – Arches National Park and surrounding area  
Zone 447 – Canyonlands National Park, Natural Bridges National Monument  
Zone 448 – La Sal and Abajo Mountains  
Zone 449 – Southern San Juan County

West Central Utah (Richfield IFC)

Zone 433 – San Pete and Sevier Valleys  
Zone 434 – West Central Deserts and Mountains  
Zone 436 – Central Utah Mountains  
Zone 438 – Henry Mountains

Southwest Utah (Cedar City IFC)

Zone 435 – Southwest Deserts and Mountains  
Zone 437 – Southwest and South Central Mountains  
Zone 439 – Utah's Dixie and Zion Canyon  
Zone 440 – South Central Utah  
Zone 441 – Glen Canyon National Recreation Area/Lake Powell

See map at end of this section.

## **B. Basic Meteorological Services**

The following services are provided to Land Management Agencies in the state of Utah:

**Emergency Fire Weather Briefings:** During emergency situations when a spot forecast will take too long, you should call us for weather information. Ask to speak with the Fire Weather Forecaster on-duty. If a Fire Weather Forecaster is not in the office, ask to speak with the Lead Forecaster on-duty.

**Routine Fire Weather Zone Forecasts:** Disseminated via WIMS and our Internet Homepage twice a day from 5/1 through 10/31. Issuance times are 0800 MDT and 1500 MDT. Times vary according to the current weather situation/spot forecast workload though every effort is made to make the forecast available as soon as possible.

**Routine Smoke Management Forecasts:** Disseminated via WIMS and our Internet Homepage once a day from 5/1 through 10/31. Issuance times will usually be from 1100-1200 MDT depending on our spot forecast workload. **Note:** With the increased emphasis on prescribed burning these days...we continue to try and make improvements to this product. Consult our homepage for the latest updates and improvements to this product including a new internet-based clearing index planner.

**Spot Forecasts:** This forecast office operates 24 hours a day, seven days a week throughout the year. Meteorologists trained in fire weather forecasting will be on duty and available for Spot Forecasts outside of normal fire weather working hours. Spot Forecasts are made available on the web page to the requesting agency as soon as possible. Average turn around time is 30-60 minutes. This will vary depending on the number of Spot Forecast requests being handled at any given time. Spot requests for wildfires are always given the highest priority. Spot requests for prescribed burns are prioritized based on the order in which they are received. (The exception is when significant problems are occurring on a particular prescribed burn operation.)

Please utilize the web-based system on our homepage to request Spot Forecasts, found at:

[http://www.wrh.noaa.gov/cgi-bin/ifps\\_spot/spotmon?site=slc](http://www.wrh.noaa.gov/cgi-bin/ifps_spot/spotmon?site=slc)

In the event of internet problems or internet unavailability, spots can still be requested via fax using WS-FORM D-1. Any problems encountered with the web-based program should be addressed to Chris Brenchley (Lead FWX Forecaster) as soon as possible. When requesting a spot, call the office to ensure receipt of the request. In addition to high quality, representative observations, critical weather elements for prescribed burning operations should be noted in block 13 on your request. This will ensure additional emphasis on the weather elements that may keep you out of prescription.

Due to staffing considerations in the Fire Weather Season, it is preferred that "non-emergency" spot forecast requests be submitted to the Fire Weather Forecaster on-duty during normal business hours (0700-1600 MDT). This will ensure you receive a spot forecast from a forecaster who has been monitoring specific fire weather conditions throughout the state.

Verification is an essential part of improving this service to you. In most cases, we only know what happened at the site if we hear from you. You are encouraged to write comments and observations in the feedback section of the spot and send them back to us or include in remarks of subsequent spot requests. If the feedback is urgent and there is a large discrepancy between forecast and observations, call the Fire Weather Forecaster on-duty directly. Any significant problems that result on your operation due to weather conditions, should be called or e-mailed into Chris Brenchley, Fire Weather Program Leader.

**Numerical NFDRS Forecasts:** disseminated each day between 1515-1545 via WIMS. Also are available on our Internet Homepage site. The fire weather forecaster will issue a point forecast for the next day for all NFDRS observations that are received from the Fire Weather District that day.

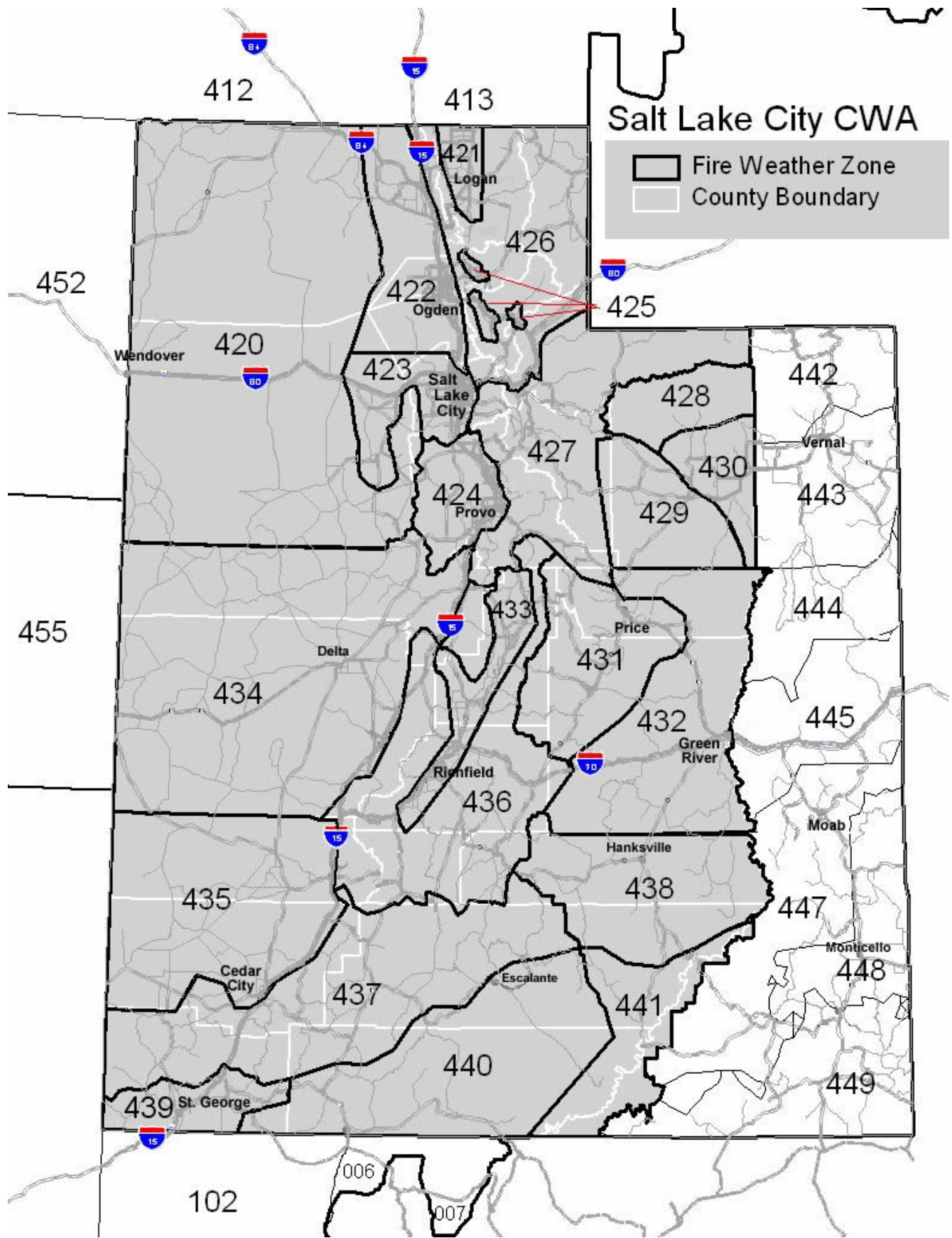
**Fire Weather Watches/Red Flag Warnings:** Normally issued via WIMS with the Routine Forecast Package (0800 or 1500) and as a separate product. This product is also available on our Internet Homepage Site. Coordination calls are made as needed to Local Dispatch Centers to verify fuel conditions. FMOs, FBAs, and Burn Bosses should make every effort to call the Fire Weather Forecaster on-duty whenever there is any concern about critically dry fuels and severe fire behavior. Watches and warnings will be based on the standard criteria set forth in this document, beginning on page 8. Local criteria may be established to meet specific requirements. These should be coordinated between the NWS and the local land management officials and Predictive Services.

**Updated Forecasts (FWFs):** Issued when necessary around midday (through the normal channels). The affected Interagency Fire Center Dispatch will either receive a fax of the updated forecast or a notification call. It will be used to address important changes to the morning fire weather forecast.

**Experimental Gridded Forecast Products:** Internet based fire weather forecast products will be tested on the Salt Lake NWS Fire Weather Homepage. These products should be considered experimental and feedback on their usefulness will be solicited from users. Any suggestions on how to improve these tools are very welcome; please email your suggestions to [slc.comments@noaa.gov](mailto:slc.comments@noaa.gov) or you can call the Fire Weather Program Leader, Chris Brenchley.

### C. Product Schedule

Morning fire weather forecast	0800 MDT
Afternoon fire weather forecast	1500 MDT
NFDRS trends forecast	NLT 1545 MDT
Fire Weather Watch / Red Flag Warnings	Event-Driven
Spot forecasts	Upon request



## Appendix C: NWS Product Formats and Examples

### Fire Weather Forecast (FWF)

The elements of the fire weather forecast are defined as:

**Headlines** – reference NWSI 10-401, section 2.3.4, page 6.

**Discussion** – reference NWSI 10-401, section 2.3.4, page 6.

**Sky/Weather** – This is a description of sky cover and expected significant weather elements, such as wet or dry thunderstorms, rain, snow, wind, unusual temperatures, etc. Areal coverage terminology (i.e., widely scattered, scattered, widespread or numerous) or percentage terms will be used to express spatial distribution of weather phenomena, such as thunderstorms, rain or snow showers, etc.

In a forecast of thunderstorms, a description of the characteristics of the thunderstorms – wet or dry – may be given.

**Temperature and 24-hour trend** – Reference NWSI 10-401, section 2.3.4, page 7. Trend forecasts will be expressed as +/- and a numerical value. Trend forecasts will only be included for the first two (2) periods.

**Humidity and 24-hour trend** – Reference NWSI 10-401, section 2.3.4, page 7. Trend forecasts will be expressed as +/- and a numerical value. Trend forecasts will only be included for the first two (2) periods.

**Wind** – Reference NWSI 10-401, section 2.3.4, page 7. A 20-foot, 10-minute average wind speed shall be used. In terrain, wind descriptors (upslope/downslope, upvalley/downvalley, etc.) may be used in lieu of an 8-point compass direction. Ridgetop winds may be included as appropriate or where locally required.

**Chance of Wetting Rain (0.10 inch)** – Chance of wetting rain is defined as the probability of 0.10 inch of precipitation or more during the forecast period. This replaces Probability of Precipitation (PoP) in the Sky/Weather section.

**Lightning Activity Level (LAL)** – LAL will be used to describe the areal coverage of lightning/thunderstorms and the numerical value will express the characteristic of the lightning/thunderstorms (wet or dry). See Table 2, page 8.

**Haines Index** – The Haines Index will be a numerical value as determined using the appropriate elevation level (low, mid, high).

**Mean Mixing Height** – Mean mixing height shall be expressed in feet above ground level (AGL).

**Mean Transport Wind** – Mean transport wind shall be expressed in knots (kt).

**Ventilation Index** – Ventilation index shall be expressed in units of knot-feet (kt-ft). No category descriptor (poor, fair, good, excellent) shall be given.

**Clearing Index** – Clearing Index shall be given as a unitless numerical value. No category descriptor shall be given.

**Extended Forecast/Outlook** – The extended shall be appended once at the end of the fire weather forecast. It may cover to at least day seven (7) but shall go to day five (5).

### Morning Fire Weather Forecast Format

FIRE WEATHER PLANNING FORECAST (FOR name of area, optional)

---

NATIONAL WEATHER SERVICE CITY STATE  
xxx AM MST/MDT DDD MMM dd yyyy (example: 900 AM MDT FRI JUL 10 1999)

...HEADLINE...  
.DISCUSSION...

SSZXXX-XXX>XXX-DDHHMM- (UGC CODING)  
GEOGRAPHICAL DESCRIPTORS (including land management units and fire weather zone numbers)  
...RED FLAG WARNING/FIRE WEATHER WATCH HEADLINE (as needed for each grouping) ...  
.TODAY...  
SKY/WEATHER.....  
MAX TEMPERATURE.....  
24 HR TREND.....  
MIN HUMIDITY.....  
24 HR TREND.....  
WIND.(20-foot, 10-min average)....  
(slope/valley...general wind...etc.)  
(ridge top...etc.)  
CHANCE OF WETTING RAIN (0.10 INCH)...  
LAL...  
HAINES INDEX...  
MEAN MIXING HEIGHT...  
MEAN TRANSPORT WIND...  
VENTILATION INDEX...  
CLEARING INDEX... (required for Utah, prepared by SLC; optional elsewhere)

.TONIGHT...  
SKY/WEATHER.....  
MIN TEMPERATURE.....  
24 HR TREND.....  
MAX HUMIDITY.....  
24 HR TREND.....  
WIND.(20-foot, 10-min average)....  
(slope/valley...general wind...etc.)  
(ridge top...etc.)  
CHANCE OF WETTING RAIN (0.10 INCH)...  
LAL...  
HAINES INDEX...  
MEAN MIXING HEIGHT...  
MEAN TRANSPORT WIND...  
VENTILATION INDEX...  
CLEARING INDEX... (required for Utah, prepared by SLC; optional elsewhere)

.TOMORROW...  
SKY/WEATHER.....  
MAX TEMPERATURE.....  
MIN HUMIDITY.....  
WIND.(wind defn).... (include definition of wind, e.g. 20 FT/10-min avg)  
(slope/valley...general wind...etc.)  
(ridge top...etc.)  
CHANCE OF WETTING RAIN (0.10 INCH)...  
LAL...  
HAINES INDEX...  
MEAN MIXING HEIGHT...  
MEAN TRANSPORT WIND...  
VENTILATION INDEX...  
CLEARING INDEX... (required for Utah, prepared by SLC; optional elsewhere)  
=  
\$\$  
[forecast for next geographical descriptor and fire weather zone group]  
=  
\$\$  
.FORECAST DAYS 3 THROUGH 7... (winds must be included days 3-5, days 6 and 7  
if appropriate; other elements per locally-established policy; may be in each



zone segment versus this location)  
.DAY3... (days can be combined, e.g., .SUNDAY THROUGH TUESDAY...)  
.DAY4...  
.DAY5...  
.DAY6... (optional)  
.DAY7... (optional)  
.OUTLOOK FOR DAY MONTH DATE THROUGH DAY MONTH DATE (per local-established  
policy - Days 8-14, 30 and 90 day outlooks when issued)  
=  
\$\$  
FORECASTER NAME

### Afternoon Fire Weather Forecast Format

FIRE WEATHER PLANNING FORECAST (FOR name of area, optional)  
NATIONAL WEATHER SERVICE CITY STATE  
xxx PM MST/MDT DDD MMM dd YYYY (example: 330 PM MDT FRI JUL 10 1999)

...HEADLINE...  
.DISCUSSION...

SSZXXX-XXX>XXX-DDHHMM- (UGC CODING)  
GEOGRAPHICAL DESCRIPTORS (including land management units and fire weather zone  
numbers)  
...RED FLAG WARNING/FIRE WEATHER WATCH HEADLINE (as needed for each grouping) ...  
.TONIGHT...  
SKY/WEATHER.....  
MIN TEMPERATURE.....  
24 HR TREND.....  
MAX HUMIDITY.....  
24 HR TREND.....  
WIND.(20-foot, 10-min average)....  
(slope/valley...general wind...etc.)  
(ridge top...etc.)  
CHANCE OF WETTING RAIN (0.10 INCH)...  
LAL...  
HAINES INDEX...  
MEAN MIXING HEIGHT...  
MEAN TRANSPORT WIND...  
VENTILATION INDEX...  
CLEARING INDEX... (required for Utah, prepared by SLC; optional elsewhere)

.TOMORROW...  
SKY/WEATHER.....  
MAX TEMPERATURE.....  
24 HR TREND.....  
MIN HUMIDITY.....  
24 HR TREND.....  
WIND.(20-foot, 10-min average)....  
(slope/valley...general wind...etc.)  
(ridge top...etc.)  
CHANCE OF WETTING RAIN (0.10 INCH)...  
LAL...  
HAINES INDEX...  
MEAN MIXING HEIGHT...  
MEAN TRANSPORT WIND...  
VENTILATION INDEX...  
CLEARING INDEX... (required for Utah, prepared by SLC; optional elsewhere)

.TOMORROW NIGHT...  
SKY/WEATHER.....  
MIN TEMPERATURE.....  
MAX HUMIDITY.....

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```

WIND.(20-foot, 10-min average)....
(slope/valley...general wind...etc.)
(ridge top...etc.)
CHANCE OF WETTING RAIN (0.10 INCH)...
LAL...
HAINES INDEX...
MEAN MIXING HEIGHT...
MEAN TRANSPORT WIND...
VENTILATION INDEX...
CLEARING INDEX... (required for Utah, prepared by SLC; optional elsewhere)

.DAY 2...
SKY/WEATHER.....
MAX TEMPERATURE.....
MIN HUMIDITY.....
WIND.(20-foot, 10-min average)....
(slope/valley...general wind...etc.)
(ridge top...etc.)
CHANCE OF WETTING RAIN (0.10 INCH)...
LAL...
HAINES INDEX...
MEAN MIXING HEIGHT...
MEAN TRANSPORT WIND...
VENTILATION INDEX...
CLEARING INDEX... (required for Utah, prepared by SLC; optional elsewhere)
=
$$
[forecast for next geographical descriptor and fire weather zone group]
=
$$
.FORECAST DAYS 3 THROUGH 7... (winds must be included days 3-5, days 6 and 7
if appropriate; other elements per locally-established policy; may be in each
zone segment versus this location)
.DAY2 NIGHT...
.DAY3... (days can be combined, e.g., .SUNDAY THROUGH TUESDAY...)
.DAY4...
.DAY5...
.DAY6... (optional)
.DAY7... (optional)
.OUTLOOK FOR DAY MONTH DATE THROUGH DAY MONTH DATE (per local-established
policy - Days 8-14, 30 and 90 day outlooks when issued)
=
$$
FORECASTER NAME

```

### Fire Weather Forecast Example 1

High probability of scattered wet thunderstorms in the afternoon.

```

FIRE WEATHER PLANNING FORECAST FOR EASTERN IDAHO
NATIONAL WEATHER SERVICE POCATELLO ID
330 PM MDT TUE JUL 13 2004

```

```

...THUNDERSTORMS DEVELOPING THIS AFTERNOON...
.DISCUSSION...SCATTERED THUNDERSTORMS WILL DEVELOP THIS AFTERNOON OVER THE
HIGHLANDS OF SOUTHEAST IDAHO AS MONSOON MOISTURE MAKES ITS WAY THROUGH NORTHERN
UTAH INTO THE AREA. THUNDERSTORMS WILL GENERALLY BE WET. TEMPERATURES WILL NOT
RISE AS MUCH AS YESTERDAY AND HUMIDITY WILL BE HIGHER AS THE MOISTURE MOVES INTO
THE AREA.
.
.
.
.TODAY...

```

SKY/WEATHER...PARTLY CLOUDY WITH A 70 PERCENT CHANCE OF WET THUNDERSTORMS THIS AFTERNOON.  
MAX TEMPERATURE...88 TO 92  
24 HR TREND...-5  
MIN HUMIDITY...20 TO 25 PERCENT  
24 HR TREND.....+10  
WIND.(20-foot, 10-min average)...SOUTHWEST 10 TO 15 MPH  
CHANCE OF WETTING RAIN (0.10 INCH)...40 PERCENT  
LAL...4  
HAINES INDEX...5  
MEAN MIXING HEIGHT...4500 FT  
MEAN TRANSPORT WIND...10KT  
VENTILATION INDEX...45000  
CLEARING INDEX...N/A

## Fire Weather Forecast Example 2

Low probability of rain with no thunderstorms.

FIRE WEATHER PLANNING FORECAST FOR UTAH  
NATIONAL WEATHER SERVICE SALT LAKE CITY, UT  
330 PM MDT FRI AUG 20 2004

.DISCUSSION...A COOL HUMID AIR MASS WILL REMAIN OVER UTAH FOR A FEW DAYS. THERE IS A SMALL CHANCE OF RAIN BUT AMOUNTS WILL BE LOW WHERE IT DOES OCCUR. ATMOSPHERE IS TOO STABLE FOR THUNDERSTORMS. WARMING TREND BY THE START OF NEXT WEEK WILL RETURN CONDITIONS TO NORMALS FOR AUGUST.

.  
.TODAY...  
SKY/WEATHER...CLOUDY WITH A 30 PERCENT CHANCE OF RAIN.  
MAX TEMPERATURE...65 TO 70  
24 HR TREND...-10  
MIN HUMIDITY...35 TO 45 PERCENT  
24 HR TREND.....+15  
WIND.(20-foot, 10-min average)...NORTH 3 TO 7 MPH  
CHANCE OF WETTING RAIN (0.10 INCH)...10 PERCENT  
LAL...1  
HAINES INDEX...3  
MEAN MIXING HEIGHT...1200 FT  
MEAN TRANSPORT WIND...4KT  
VENTILATION INDEX...4800  
CLEARING INDEX...48

## Red Flag Warning/Fire Weather Watch Format

RED FLAG WARNING (or FIRE WEATHER WATCH)  
NATIONAL WEATHER SERVICE CITY STATE  
xxx AM/PM MST/MDT DDD MMM dd YYYY (example: 0830 AM MDT TUE SEP 02 2001)

SSZXXX-XXX>XXX-DDHHMM- (UGC coding)

...HEADLINE (of what, where, when)...

FIRE WEATHER ZONES (or COUNTIES) INCLUDED IN THIS WARNING ARE:

LIST THE ZONES/COUNTIES (example: 429...431...435...WEST PORTIONS  
433...436...437)

DISCUSSION: (Focus on adverse weather conditions; do not comment on fuel or fire danger conditions.)

CALL TO ACTION (optional)

## Standard Spot Forecast Format

The following is a standard spot forecast format. Many offices now use an internet-based spot forecast request system which delivers a slightly different format. Online spot forecast request forms can be viewed from the NWS offices' Fire Weather web pages or can be accessed from the Predictive Services' web pages.

```
SPOT FORECAST FOR (location or name of burn)
NATIONAL WEATHER SERVICE (CITY STATE)
xxx AM/PM MST/MDT DDD MMM dd YYYY (example: 800 AM MST TUE NOV 27 2001)
```

```
IF CONDITIONS BECOME UNREPRESENTATIVE, CONTACT THE NATIONAL WEATHER SERVICE.
```

```
...HEADLINE...(if a fire weather watch or red flag warning is in effect, a
headline is required - otherwise, a headline is recommended for every
issuance.)
```

```
DISCUSSION...(required)
```

```
FIRST PERIOD
SKY/WEATHER.....
TEMPERATURE.....
HUMIDITY.....
WIND.....(specify the wind level)
OPTIONAL ELEMENTS...(as requested by the users)
```

```
SECOND PERIOD
SKY/WEATHER.....
TEMPERATURE.....
HUMIDITY.....
WIND.....(specify the wind level)
OPTIONAL ELEMENTS...(as requested by the users)
```

```
THIRD PERIOD
SKY/WEATHER.....
TEMPERATURE.....
HUMIDITY.....
WIND.....(specify the wind level)
OPTIONAL ELEMENTS...(as requested by the users)
```

```
FORECASTER...
$$
```

## National Fire Danger Ratings System (NFDRS) Forecast format

NFDRS forecasts use two formats: one for trend forecasts and one for point forecasts. Both are comma-delimited files.

The trend forecast format is:

**ZONE, NO, YYMMDD, 13, WX, TEMP, RH, LAL1, LAL2, WSPD, 10HR, TX, TN, RHx, RHn, PD1, PD2, WETFLAG**

Trend forecasts show the change in the predictors 24 hours from the current observation. Trend forecasts may be for an individual station or for a group of stations (averaged values). The individual stations or groups of stations for a trend forecast will be prepared will be determined locally between the NWS and the land management officials within the CWFA.

The point forecast format is:

**FCST, NO, YYMMDD, 13, WX, TEMP, RH, LAL1, LAL2, WDIR, WSPD, 10HR, TX, TN, RHx, RHn, PD1, PD2, WETFLAG**

Point forecasts show the actual values expected at a station 24 hours from the current observation, in other words, the next day. These are only for individual stations. The stations for which point forecasts will be prepared will be determined locally between the NWS and the land management officials within the CWFA.

The key for the forecast formats is:

- **ZONE/FCST** – Identifies the forecast as a trend (ZONE) or point (FCST) forecast
- **YYMMDD** - Year, month, day valid forecast time
- **NO** - NFDRS Zone Number or individual NFDRS site station number
- **13** – The valid time for the forecast (always 1300 LST)
- **WX** - Weather valid at 1300 LST tomorrow. Valid entries are:

0 – clear	5 - drizzle
1 - scattered clouds (1/8 to 4/8)	6 - raining
2 - broken clouds (5/8 to 7/8)	7 - snowing or sleeting
3 - overcast clouds (more than 7/8)	8 - showers (in sight or at the station)
4 – foggy	9 - thunderstorm
- **TEMP** - Temperature in deg F valid at 1300 LST (or temperature trend + or -)
- **RH** - Relative humidity in percent valid at 1300 LST (or RH trend + or -)
- **LAL1** - Lightning Activity Level 1400 LST to 2300 LST
- **LAL2** - Lightning Activity Level 2300 LST to 2300 LST
- **WDIR** - Use only for point forecast (FCST) version. Use 16-point compass (N, NNE, NE, ENE, etc.) valid at 1300 LST (20 ft level/10 minute average)
- **WSPD** - Wind speed in mph valid at 1300 LST (or wind speed trend + or -, 20 ft level/10 minute average)
- **10HR** - 10 hour timelag fuel moisture in percent valid at 1300 LST (or trend + or -)
- **Tx** - Max temperature from 1300 LST to 1300 LST tomorrow
- **Tn** - Min temperature from 1300 LST to 1300 LST tomorrow
- **RHx** - Max relative humidity from 1300 LST to 1300 LST tomorrow
- **RHn** - Min relative humidity from 1300 LST to 1300 LST tomorrow
- **PD1** - Precipitation duration in hours 1300 LST to 0500 LST
- **PD2** - Precipitation duration in hours 0500 LST to 1300 LST
- **WETFLAG** - Y or N. Indicates whether liquid water will be on the fuels at 1300 LST. (Use with caution - a “Y” will set all the NFDRS indices to zero!)

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## Appendix D: Predictive Services Product Formats and Examples

### Daily Fire Weather/Fire Behavior Map

The Daily Fire Weather/Fire Behavior Map is a composite of fire weather and fire behavior forecasts used to give a snapshot of potential or high probability fire problems in the geographic area. No standard format is available for this product, but it generally consists of a graphic and a brief narrative. It is available online from the Predictive Services web sites for both Western and Eastern Great Basin Coordination Centers.

### Weekly Fire Weather/Fire Danger Outlook Format and Example

The Weekly Fire Weather/Fire Danger Outlook contains standard elements of:

- Weather Discussion
- Fuels Discussion
- 7 to 10 day Outlook
- Resources Discussion
- Map

However, each GACC produces a slightly different version. The following example is Eastern Great Basin's version of the Weekly product.

### ***Weekly Fire Weather / Fire Danger Outlook For:***

*Wednesday 30 July to Friday 8 August 2003*

*Eastern Great Basin Predictive Services*

*Tuesday 29 July 2003*

#### **Weather Discussion:**

A weak disturbance moved through the northern Rockies Thursday and Friday (24-25 July) pushing the high pressure to the four corners area allowing wet thunderstorms to develop over the whole region. For the remainder of the week, thunderstorms have been a mix of wet and dry, generally limited to Utah. Temperatures were 5-10 degrees above normal for the first half of the week, breaking records region wide, but then moderated to just above normal for the rest of the week. Precipitation for the week of 23-29 July was slightly above normal in Idaho, the BT, and southern Utah (on average .20-.40 inches). Precipitation was slightly below normal in northern Utah (on average .10-.30 inches).

Strong high pressure will remain over the Great Basin through Thursday (31 July) with hot, generally dry conditions over the region. The high will migrate east into Colorado Friday (1 August) opening the door to southerly flow and increased moisture across the region. The initial push of moisture on Friday and Saturday poses a threat of dry lightning over most of the region. As the high weakens and moves east a cooling trend will begin with temperatures dropping to normal or slightly below normal by Sunday (3 August). Disturbances moving through the Pacific Northwest and northern Rockies will further break down the high pressure over the weekend leading to increased winds and a threat of lightning outbreaks. Some drying will develop early next week (4-5 August) from the west as a dryer southwest flow develops. **Wind and the threat of dry lightning in the Friday-Saturday period will make for potentially critical fire weather over Eastern Great Basin.**

#### **Fuels Discussion:**

Thousand hour fuel moistures have moderated somewhat due to wet thunderstorms throughout the region this last week. This is short-lived however with hot, dry conditions returning to the area over the next few days. The ERC have also had a slight decline throughout the region due this last weeks weather conditions, but will

return to critical levels quickly as fuels dry. The hot and dry conditions over the next couple of days will dry out fuels and continue curing grasses at higher elevations. Fuel beds will be receptive to any ignition source particularly in cured grass fuels. Continue to expect quick ignition, rapid buildup and aggressive burning on the south facing slopes with frequent spot fires that spread rapidly. Fire danger will be very high to extreme area wide for the next week particularly Friday and Saturday as lightning moves through the region. The threat of dry lightning and winds during the Friday-Saturday period will make for critical fire danger over Eastern Great Basin.

**10 Day Forecast:**

**Idaho/Western Wyoming:** Payette, Central Idaho, Boise, South Idaho, East Idaho, Bridger-Teton Dispatch Areas

Day/Date	Fire Danger	Weather
<b>Wed - Thu</b> (30-31 Jul)	Very High - Extreme	Hot and very dry with isolated dry thunderstorms over the mountains. Poor humidity recovery. Light winds, except gusty near storms.
<b>Fri</b> (1 Aug)	<b>Extreme</b>	A chance of dry thunderstorms, mainly over the mountains. Microburst winds possible near storms. Otherwise generally dry and not quite as hot.
<b>Sat</b> (2 Aug)	<b>Extreme</b>	Breezy with a chance of thunderstorms; wet in the mountains and dry in the valleys. Microburst winds possible near storms. A little cooler with slightly improved humidity.
<b>Sun</b> (3 Aug)	Very High - Extreme	Breezy to windy and a little cooler. Scattered showers and thunderstorms. Humidity up around 10 percent.
<b>Mon</b> (4 Aug)	Very High - Extreme	Locally breezy with a chance of showers and thunderstorms, mainly over the mountains.
<b>Tue - Fri</b> (5-8 Aug)	Very High - Extreme	Warm and generally dry. A slight chance of thunderstorms.

**Northern Utah:** Northern Utah, Uintah Basin Dispatch Areas

Day/Date	Fire Danger	Weather
<b>Wed - Thu</b> (30-31 Jul)	Very High - Extreme	Hot and dry with poor humidity recovery and light winds. A slight chance of thunderstorms over the mountains.
<b>Fri</b> (1 Aug)	<b>Extreme</b>	A chance of dry thunderstorms, mainly over the mountains. Microburst winds possible near storms. Otherwise dry and hot.
<b>Sat</b> (2 Aug)	<b>Extreme</b>	A chance of thunderstorms; wet in the mountains and dry in the valleys. Breezy west portions. Microburst winds possible near storms. A little cooler with slightly improved humidity.
<b>Sun</b> (3 Aug)	Very High - Extreme	Breezy and a little cooler. Scattered showers and thunderstorms. Humidity up around 10 percent.
<b>Mon</b> (4 Aug)	Very High - Extreme	Locally breezy with a chance of showers and thunderstorms, mainly mountains.



<b>Tue - Thu</b> (5-7 Aug)	Very High – Extreme	Warm and generally dry. A slight chance of thunderstorms over the mountains.
<b>Fri</b> (8 Aug)	Very High - Extreme	Possible return of moisture to northern Utah.

**Southern Utah:** Richfield, Cedar City, Moab Dispatch Areas

<b>Day/Date</b>	<b>Fire Danger</b>	<b>Weather</b>
<b>Wed</b> (30-31 Jul)	Very High - Extreme	Generally hot and dry with poor humidity recovery and light winds. A chance of thunderstorms (mostly wet) near the Arizona border.
<b>Thu</b> (30-31 Jul)	Very High - Extreme	Generally hot and dry with light winds and poor humidity recovery. A slight chance of thunderstorms over the mountains.
<b>Fri</b> (1 Aug)	<b>Extreme</b>	A chance of dry thunderstorms, mainly over the mountains. Microburst winds possible near storms. Otherwise dry and hot.
<b>Sat - Sun</b> (2-3 Aug)	Very High - Extreme	Locally breezy and a little cooler. Scattered showers and thunderstorms. Humidity up around 10 percent.
<b>Mon</b> (4 Aug)	Very High - Extreme	Locally breezy with a chance of showers and thunderstorms.
<b>Tue - Wed</b> (5-6 Aug)	Very High – Extreme	Warm and generally dry. A slight chance of thunderstorms.
<b>Thu - Fri</b> (7-8 Aug)	Very High - Extreme	Possible return of moisture.

**Resources:**

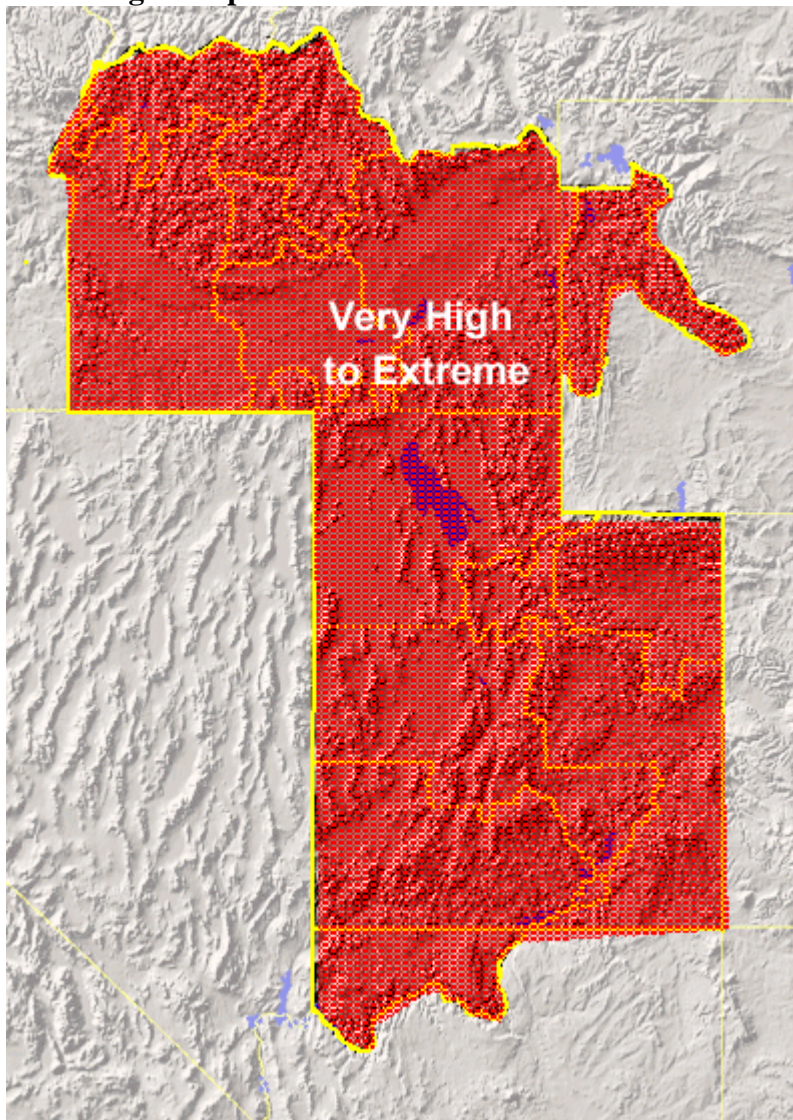
Eight Geographic Areas, including Eastern Great Basin continue to experience large fire activity, with six of these areas experiencing multiple large fires. Nationally the Preparedness Level is 5.

Initial attack activity continues to be moderate to heavy due to lightning holdovers. Most centers are reporting adequate resources for light initial attack but are short on resources for extended attack and large fires. Large fire activity has impacted most resource pools with the need to go out of area to fill shortages. Resources within Eastern Great Basin are sufficient to support light initial attack activity during the next week, but extended attack and large fire activity will require resources from out of area.

There are four Incident Management Teams committed within Eastern Great Basin, two Type 1 and two Type 2. Due to areas that are experiencing large fire activity and shortages of initial attack resources, Eastern Great Basin is ordering more resources from outside of the Region. Eastern Great Basin is currently at Preparedness Level 4.

As of July 21, 2003 there are no Type 1 or Type 2 Crews available. There are five airtankers and nine SEATS being utilized within Eastern Great Basin. Smokejumpers are available at McCall, Ogden, Twin Falls, and Cedar City.

**Fire Danger Map:**



**Monthly Fire Potential Outlook Format and Example**

As with the Weekly, the monthly is standardized insofar as all must include a specified minimum elements, which include:

- Potential for serious or critical fire problems
- Fire weather outlook that includes:
  - Drought conditions discussion
  - Precipitation anomaly and outlook discussion
  - Temperature anomaly and outlook discussion
- Fuels assessment
- Average fire occurrence/acres burned data
- Actual fire occurrence/acres burned data
- Summary
- Resources discussion
- Fire potential map

The following is an example from Eastern Great Basin.

**MONTHLY FIRE WEATHER/FIRE DANGER OUTLOOK  
UPDATED**

1. **REPORTING UNIT:** Eastern Great Basin Coordination Center
2. **DATE:** 15 July 2003 **valid for** mid -July 2003 through August
3. **POTENTIAL FOR SERIOUS/CRITICAL FIRE PROBLEMS**

<b>THIS COMING MONTH</b>	<b>BELOW NORMAL</b>		<b>NORMAL</b>	x	<b>ABOVE NORMAL</b>	x
<b>THIS SEASON</b>	<b>BELOW NORMAL</b>		<b>NORMAL</b>	x	<b>ABOVE NORMAL</b>	x

**COMMENTS:**

**4. FIRE WEATHER OUTLOOK:**

**DROUGHT CONDITIONS:** Drought conditions remain at extreme to exceptional for the Eastern Great Basin through mid-July. The area north of the Snake River in Idaho has recovered somewhat, due in large part to the significant rains the area received entering the last 10 days of June.

**PRECIPITATION ANOMALIES AND OUTLOOK:** Precipitation for the first two weeks of July has been very sparse across the Eastern Great Basin. The only area that received any appreciable rainfall was the Payette National Forest area of central Idaho, where a tenth (0.10”) to one-quarter inch (0.25”) fell early in the month. Otherwise, less than 20 percent of normal rainfall occurred over the region.

Below normal precipitation is expected across much of western Idaho and Utah. The remainder of the Eastern Great basin is expected to have near normal precipitation.

**TEMPERATURE ANOMALIES AND OUTLOOK:** The first half of July was very warm with maximum temperatures averaging 5 to 10 degrees above normal. Several records were broken during the this time with readings of over 110 degrees over sections of Utah and southern Idaho.

Above normal temperatures are expected to continue through August.

**5. FUELS**

<b>FINE - GRASS STAGE</b>	<b>GREEN</b>		<b>CURED</b>	x		
<b>NEW GROWTH</b>	<b>SPARSE</b>		<b>NORMAL</b>	x	<b>ABOVE NORMAL</b>	

**6. AVERAGE FIRE OCCURRENCE/ACRES BURNED** (to date 5 year average): N/A

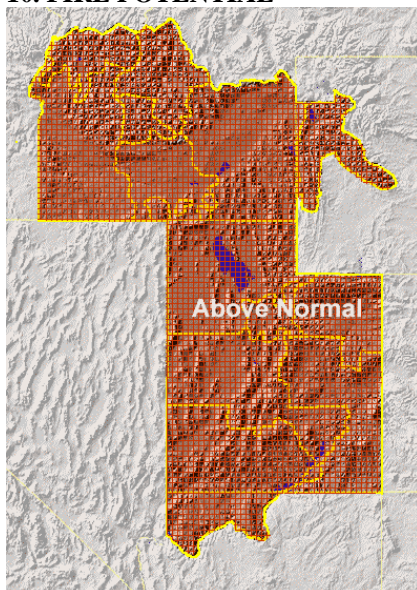
**7. ACTUAL OCCURRENCE/ACRES BURNED** (through June 2003): 51 fires/ 365 acres  
 39 fires/ 353 acres human caused  
 12 fire/ 12 acres lightning

**8. WRITTEN SUMMARY:** Cool and wet conditions near the end of June in northern Utah and Idaho slowed the curing of fine fuels, helped with live fuel moisture in juniper and sage, and raised thousand-hour fuel moisture in some areas. However, this was short lived as high pressure resumed over the Basin and brought very hot conditions which quickly dried fuels. Fine fuels are totally cured below approximately 8500 feet. Curing at higher elevations is well underway and should be nearing completion on schedule in July. Live fuel moistures are beginning their seasonal decline in sage and progressing at or ahead of schedule in juniper and pinyon. Thousand-hour fuel moisture and energy release component (ERC) were near or at extreme levels at virtually all locations.

Fire activity through mid-July has exhibited extreme to advanced behavior. Anecdotal evidence indicates that fire behavior has been atypical for the time of year, suggesting that fuel condition may be more extreme than the numbers show. Nevertheless, above normal fire danger will continue across most of the area below 8500 feet into August with normal fire danger above. Higher elevations with large loadings of downed and dead fuels will also be characterized by above normal fire danger, especially as fine fuels at these elevations cure.

**9. RESOURCES:** Initial attack resources will be adequate for light initial attack activity. Resources from outside the region will be necessary for extended attack and large fire activity.

**10. FIRE POTENTIAL**



## Appendix E: List of Abbreviations and Acronyms

**AOP** – Annual Operating Plan

**ASOS** – Automated Surface Observation System

**AWIPS** – Advanced Weather Information Processing System; the computer system used by the National Weather Service.

**BIA** – Bureau of Indian Affairs

**BLM** - Bureau of Land Management

**COB** – Close of Business

**CWFA** – Country Warning and Forecast Area

**ERC** – Energy Release Component

**FAA** – Federal Aviation Administration

**FWF** – Fire Weather Forecast; also the product identifier for the Fire Weather Forecast narrative issued by the National Weather Service.

**FWPL** – Fire Weather Program Leader

**FWS** – Fish and Wildlife Service

**GACC** – Geographic Area Coordination Center

**HAZMAT** – Hazardous Materials

**IMET** – Incident Meteorologist

**LDT** – Local Daylight Time

**LST** – Local Standard Time

**MAC** – Multi-Agency Coordinating group

**NFDRS** – National Fire Danger Ratings System

**NFES** – National Fire Equipment System

**NIFC** – National Interagency Coordination Center

**NPS** – National Park Service

**NWCG** – National Wildland Coordinating Group

**NWS** – National Weather Service

**NWSI** – National Weather Service Instruction; refers to the directives or policies under which National Weather Service operates.

**RAWS** – Remote Automated Weather System

**RFW** – Red Flag Warning; also the product identifier for the Red Flag Warning and Fire Weather Watch narrative issued by the National Weather Service.

**USDA FS** – United States Department of Agriculture Forest Service

**WIMS** – Weather Information Management System

**WFAS** – Wildland Fire Assessment System

**WFU** – Wildland Fire Use

**WIMS** – Weather Information Management System

## Appendix F: Interagency Relationships and Communications Letter



National Interagency Fire Center  
3838 S. Development Avenue  
Boise, Idaho 83705

August 26, 2003

To: Geographic Area Coordinating Groups

From: Fire Directors  
Bureau of Indian Affairs  
Bureau of Land Management  
Fish and Wildlife Service  
Forest Service  
National Park Service

Re: Relationships and Communications between Predictive Services and the National Weather Service

The Interagency Agreement for Meteorological Services outlines the roles and responsibilities of Predictive Services and the National Weather Service (NWS). The agreement references an annual operating plan (AOP) in Appendix 1. The Fire Directors expect to see that the annual operating plans be completed or updated by April 15 each year. This letter provides interim guidance until the 2004 AOPs are completed.

### **Monitoring and Evaluating NWS Products**

Predictive Services should evaluate, monitor, and assure the quality and consistency of operational products provided by NWS to the Fire Management Units. This should be done collaboratively with the NWS. Products provided by the NWS should be held to the same standard as Predictive Services products (the methodology of how products are produced is considered internal agency business). Areas that need improvement should be identified and addressed. Predictive Services should work with the NWS to develop mutually agreed upon standards for products and services.

## **Communicating with NWS**

### *Local Wildland Fire Agency Units and NWS Weather Forecast Offices*

Fire Management Units should work with their local Weather Forecast Offices (WFOs) to resolve issues at the local level. Units should raise substantive issues to the Geographic Area Lead Predictive Services meteorologist (Agency Fire Weather Program Manager). WFOs, at the discretion of the Meteorologist-in-Charge, should be encouraged to coordinate significant issues with the NWS Regional Fire Weather Program Manager. This is intended to keep NWS regional Geographic Area Coordination Center (GACC) personnel informed and should not impede local communication. Minor issues such as late products, typographical errors, and missing weather observations should be handled locally.

### *Geographic Area and NWS Regional Fire Weather Program Managers*

The Geographic Area Predictive Services meteorologist (Fire Weather Program Manager) should collaborate with the NWS Regional Fire Weather Program Manager to resolve issues raised from the local level. Issues that cannot be resolved at the Geographic Area level should be elevated to the National Fire Weather Program Manager at the National Interagency Fire Center (representing the federal fire agencies). The NWS Regional Fire Weather Program Manager should be encouraged to elevate unresolved issues to the next management level.

### *National Fire Weather Program Managers*

The National Fire Weather Program Manager at the National Interagency Fire Center (representing the federal wildland fire agencies) should collaborate with the NWS National Fire Weather Program Manager to resolve issues raised from the regional level. These issues should be resolved within a timeframe agreed to by the geographic area and the national office. Issues that cannot be resolved at the national level should be elevated to the Federal Agency Fire Directors. The NWS National Fire Weather Program Manager should be encouraged to elevate unresolved issues to the next management level as well.

## **Coordinating Red Flag Warnings and Fire Weather Watches**

Predictive Services should identify Fire Management Units where coordination issues exist and collaborate with the NWS to develop protocols to ensure that adequate coordination exists prior to issuance of red flag warnings and fire weather watches. Fire weather conference calls with NWS units are encouraged. These steps are intended to ensure the consistency of information provided to the units. Protocols should be documented and shared with other Geographic Area Predictive Services units and with NWS Regional Offices.

Again, the actions in this letter are meant to serve as interim guidance until the completion of an annual operating plan. Please work collaboratively, communicate often and effectively, and document what is being learned.



/s/ Alice R. Forbes  
Alice Forbes  
USFS Assistant Director of Operations

/s/ Phil Street  
Phil Street  
USFWS Fire Director

/s/ Jim Stires  
Jim Stires  
BIA Fire Director

/s/ Larry Hamilton  
Larry Hamilton  
BLM Fire and Aviation, Director

/s/ Sue Vap  
Sue Vap  
NPS Fire Director

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### Appendix G: Spot Request Form D-1

WS FORM D-1 (12-86) Pres. By WSOM D-41		<b>FIRE WEATHER SPECIAL FORECAST REQUEST</b> <i>(See reverse for instructions)</i>				U. S. DEPARTMENT OF COMMERCE NOAA NATIONAL WEATHER SERVICE			
<b>I - REQUESTING AGENCY WILL FURNISH:</b>									
1. NAME OF FIRE OR OTHER PROJECT			2. CONTROL AGENCY			3. REQUEST MADE			
						TIME †	DATE		
4. LOCATION <i>(By 1/4 Sec - Sec - Twp - Range)</i>				5. DRAINAGE NAME		6. EXPOSURE <i>(NE, E, SE, etc.)</i>			
7. SIZE OF PROJECT <i>(Acres)*</i>		8. ELEVATION*			9. FUEL TYPE		10. PROJECT ON: <input type="checkbox"/> GROUND <input type="checkbox"/> CROWNING		
		TOP	BOTTOM						
<b>11. WEATHER CONDITIONS AT PROJECT OR FROM NEARBY STATIONS</b> <i>(See example on reverse)</i>									
PLACE	ELE- VATION	OB TIME †	WIND DIR. - VEL.		TEMP.		‡ <i>(Lv. Blank)</i>		REMARKS <i>(Indicate rain, thunderstorms, etc. Also wind condition and 10ths of cloud cover.)</i>
			20 FT.	EYE LEVEL	DRY	WET	RH	DP	
12. SEND FORECAST TO:			PLACE			VIA		ATTN: <i>(Name, if applicable)</i>	
<b>II - FIRE WEATHER FORECASTER WILL FURNISH:</b>									
13. FORECAST AND OUTLOOK: <i>(Specify Wind - 20 foot or Eye Level)</i>						TIME † AND DATE: _____			
NAME OF FIRE WEATHER FORECASTER				FIRE WEATHER OFFICE					
<b>III - REQUESTING AGENCY WILL COMPLETE UPON RECEIPT OF FORECAST</b>									
IV - FORECAST RECEIVED:			TIME †	DATE	NAME				
Explanation of Symbols		† Use 24-hour clock to indicate time. Example: 10:15 p.m. = 2215; 10:15 a.m. = 1015 * For concentrations (as groups of lightning fires) specify "Concentration"; then give number of fires and size of largest. If concentrations are in more than one drainage, request special forecast for each drainage. ‡ No entry necessary. To be computed by the Fire Weather Forecaster.							

WS FORM D-1

SUPERSEDES PREVIOUS EDITIONS